

E001066

MH - Regional Medical Programs/*/congresses
KW - 20C
CNA - Conference - Workshop on Regional Medical Programs//1968/Washington,
D.C./
CN - National Institutes of Health (U.S.)
TI - Proceedings./G
TI - Proceedings, Conference - Workshop on Regional Medical Programs/
IM - [Bethesda, Md.]/National Institutes of Health; for sale by the Supt. of Docs.,
U.S. Govt. Print. Off., Washington]/1968.
CO - 2 v.:illus., ports.
SE - Public Health Service publication,/no. 1774/G
CP - 02NLM:WA 540:A:C63p::1968
CA - WA 540 A C63p 1968:02NLM
Y1 - S/1968/
PR - 1.50
LP - Eng
LA - Eng
MT - CONFERENCE NAME MAIN ENTRY
RO - O:MED
RO - C:MED
DA - 680807
EL - FULL LEVEL
IT - MONOGRAPH
UI - 0147534

PROCEEDINGS:

VOLUME II

conference-
workshop
on
**REGIONAL
MEDICAL
PROGRAMS**



JANUARY 17-19, 1968 • WASHINGTON, D.C. • NATIONAL INSTITUTES OF HEALTH • PUBLIC HEALTH SERVICE • U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Public Health Service Publication No. 1774

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402 - Price \$1.50 (paper cover)

INTRODUCTION

This volume comprises the 60 reports on regional ideas and activities, plans and operations, presented at the Conference-Workshop on Regional Medical Programs from January 17 to 19, 1968, in Washington, D.C.

These papers were selected for presentation by the Regional Medical Program Coordinators' Steering Committee from a total of 100 submitted. They provide highlights of the 54 Regional Medical Programs established throughout the United States by the end of 1967.

As such, they provide substantive evidence of progress under the Heart Disease, Cancer, and Stroke Amendments of 1965. The National Advisory Council on Regional Medical Programs authorized the first planning grants under this Act of Congress to begin on July 1, 1966; the majority of programs came into being in 1967.

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1

HEALTH EVALUATION STUDIES UTILIZING A MULTIPHASIC SCREENING CENTER OPERATING IN COOPERATION WITH A COMPREHENSIVE HEALTH CARE PROGRAM FOR PERSONS IN AN URBAN POVERTY AREA

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During the last 20 years, American medicine has triumphantly explored the causes, diagnoses, and treatment of diseases. Contrariwise, it has conducted only rudimentary research into how this new knowledge can be distributed and whether it makes much difference when it is.

It is a remarkable and somewhat depressing commentary on our time

to note some striking contrasts; in the macrocosm we are about to jump to the moon with fantastically sophisticated technology. In the microcosm we have been giddily climbing the spiral ladder of the DNA molecule. Yet we have no precise knowledge of whether comprehensive medical care coupled with modern technology can be effective in improving the health of our citizens.

Our problem in America is not that we lack technology; we have enough to frighten us all. It is not that we lack a concept of comprehensive health care or that there have not been isolated attempts to practice it. What we do not have is a marriage of technology and comprehensive personal health care, and an assessment of the results.

For many years Meharry Medical College in Nashville, located in the midst of a deteriorating innercity, has worried about the physical, emotional, and social sickness of the people in its community.

We now think we have tools to do something about this deterioration and to add to our scientific knowledge of these questions.

Under the sponsorship of the Mid-South Regional Medical Program and with the cooperation of the Office of Economic Opportunity, Fisk and Vanderbilt Universities and George Peabody College, the staff of Meharry Medical College will attempt to discover the following: Whether comprehensive, family-oriented health care in a Neighborhood Health Cen-

ter coordinated with an automated multiphasic screening laboratory will result in improved mortality, morbidity, health service utilization, and in health attitudes. Further, can this care result in a reduction of the high cost of physical and emotional illness and can it result in preservation or restoration of the family?

The basic design of these health studies is made possible by (1) the automated multiphasic screening laboratory, (2) the center for community studies, both of which can help assess the levels of health in comparable communities, and, (3) the Neighborhood Health Center which will deliver comprehensive family care to persons in a defined area. Three populations will be studied—one which receives services of the Neighborhood Health Center and the Multiphasic Screening Laboratory—one which receives services of the laboratory but not the health center—and one which receives only traditional medical services. These populations will be studied initially and at periodic intervals to assess changes in the level of health care as well as the level as compared with the other populations. A brief description of each of the components of this design follows:

The Center for Community Studies at Peabody College is a multiuniversity group of behavioral scientists—mainly psychologists, sociologists, and social workers. The center has conducted a family survey among the people eligible to be served by

our OEO-sponsored Neighborhood Health Center in North Nashville, to be described below.

The population is predominantly Negro, about 80 percent. Over 60 percent of all the families have incomes of less than \$3,000 per year. One-half of the occupied dwelling units are classified as deteriorating or dilapidated. Only one-third of the population 25 years and over have more than an eighth grade education. Only one adult in a hundred has completed a college education. In almost half of the families the head of the household is a woman. The population studied demonstrated some lack of awareness of available health services and facilities, although the proportion using Meharry's Hubbard Hospital outpatient services was high. The average incidence of recalled illness is 1.4 per person per year, with the majority of complaints centering about major organs and body systems. From these and previous studies, the problems and needs seem nothing short of alarming.

The Meharry Neighborhood Health Center is scheduled to open in the fall of 1968 in a new building about four blocks from the Medical College. It is one of the first such centers in the South funded by the Office of Economic Opportunity. It will provide ambulatory health care, home and community services in North Nashville.

The Neighborhood Health Center will attempt to offer the entire family continuing, personalized, comprehen-

sive care compatible with the guidelines of the OEO health service office, in a friendly atmosphere under one roof. Comprehensive health care which has recently been described as "compassionate, personal, continuing, and family oriented attention from birth to death so that a person gets as much care as he needs and desires in a situation where, although there is a meaningful patient-doctor relationship with one physician, there is access to the whole spectrum of diagnostic, preventive, and therapeutic services with organized referral channels that do not break down the patient-doctor relationship or interfere with a continued unified record; and where every care provider is responsible and kept responsible and reminded of professional disciplines to maintain standards of quality, quantity and cost."

The center will be so organized that urgent problems will be cared for promptly, appointments will reduce waiting time, the center will be open in both evening hours; will be geared to work patterns, and there will be coverage at other hours.

The core of the architectural and functional design for the center is the family health suite. It is from here that those comprising the family health team will view the patient's problems in the setting of his family and its place in the community. Different models of the family health team will be developed and tested: including combinations of different types of physicians, dentists, clinical

and visiting nurses, dental hygienists, and health aides recruited from the neighborhood to assist in nursing and dental work. The family health team will be responsible for continuing care, including supervision during hospitalization when needed. It will work closely in a consultative and learning-teaching capacity with mental health, social service and a whole series of the basic specialty services, including all those of our medical and dental center and indeed of the whole community. The Neighborhood Health Center itself will include full- or part-time specialty services such as laboratory, X-ray, surgery, physical medicine, and rehabilitation. Public health nursing will be provided in cooperation with the health department. There will be community programs in health education, home management, and nutrition. Modern methods of keeping records and producing reports, statistics, and program evaluation will be applied.

An essential component of the project is that residents of the service area will have a direct voice in policy making at the center through a community health association of their own design. Such an entity is well on its way and should grow to assume full partnership with us. Many neighborhood people will be recruited as aides to be trained for new health careers, some assisting physicians, nurses, social workers, and other health personnel, as well as other roles. The aim is to make it possible for these employees to then climb

out of poverty, to obtain health careers, and in a new way help meet some of the health manpower needs of the community.

Meharry is also establishing a Multiphasic Screening Laboratory which will be coordinated with, but not organizationally or functionally dependent on, the Neighborhood Health Center. This laboratory is modeled after the Kaiser-Permanente prototype and is being housed in the lower floor of the Hubbard Hospital of the medical school. The Multiphasic Screening Laboratory is a cooperative venture, with neighboring Fisk University and Vanderbilt University sharing needed biomedical and computer specialists and equipment.

The Multiphasic Screening Laboratory will provide a compact unit where physicians may refer patients for a variety of screening tests in a minimum of time with due regard to the client's convenience and dignity. As a demonstration project for maximizing the efficiency of scarce physicians and nurses, the project will attempt to limit the number of professionals to the minimum essential for good care.

All available automation techniques will be used where practical. Special efforts will be directed not only to the detection of heart disease, cancer, and stroke and allied diseases, but also for the identification of those medical disorders that may be precursors or contributing factors to these serious diseases. The screening laboratory will accept patients from

3 p.m. to 11 p.m., Monday through Friday. It is estimated that 25,000 persons can be examined yearly.

Using 21 stations and a total staff of 47 persons (most of whom are aides) a patient will expend from 60 to 180 minutes at the laboratory for each survey.

The following procedures will be performed in selected patients: Visual acuity testing, dental examination, electrocardiography, spirometry, phonocardiography, achilles reflex time, cervical cytology, blood pressure determination simultaneously on both arms, mammography, anthropometric studies (including height, weight, skinfold thickness, and girth measurements), chest and abdominal roentgenography, panoramic oral roentgenography, immunization against diphtheria and tetanus, medical history, psychological questionnaire, a battery or 27 blood tests, urinalysis with a screening culture, tonometry, and audiometry.

Patients being studied at the screening laboratory will be aware of friendly aides administering the tests and will only dimly perceive the sophisticated automation of transmitting, procession, and retrieving of information. We plan computer evaluation of vectocardiographs, spirograms, and phonocardiograms. Automated laboratory equipment will perform 23 of the 27 blood tests. Audiometric results will be interpreted by the computer. Many of the tests can be performed in real time

and on line. The computer will assist the registration and arranging appointments, and, at the time the patient completes the survey, a preliminary printout will be available so that further testing can be programed if necessary before the patient leaves.

Since any patient screened will be referred by a physician, final computer printout of results will be transmitted to his attending physician within 24 hours with special flagging for findings of potentially serious import and with an appraisal as to what some of the health risks are and how they might be modified by appropriate action.

We plan for each patient electronic storage of the data from the screening examination. Other clinical information on patients examined at the Neighborhood Health Center will also be entered into the data processing system for subsequent analyses.

Over a 10-year period, various studies will be made. The most significant investigation will be a sustained effort to evaluate the effects on defined populations' health (mortality, morbidity, disability), nutritional status, health service utilization, health attitudes, and cost of care. This will be a demanding evaluative project, but physicians, statisticians, sociologists, and computer scientists of four institutions are addressing themselves to its organization. From this study should come clearer knowledge of the effectiveness of multiphasic screening and of comprehensive health care, singly or to-

gether, for a primarily medically indigent population.

Stratified random samples of three defined population groups will be studied by questionnaire of several hundred households each:

(1) Those eligible for care at the Meharry Neighborhood Health Center and also eligible for multiphasic screening.

(2) Those not eligible for Neighborhood Health Center care, but eligible for multiphasic screening.

(3) Those not eligible for the Neighborhood Health Center nor for multiphasic screening.

The household questionnaire is patterned after those of the National Center for Health Statistics, especially the National Health Survey Form of 1964, but is more comprehensive. It contains questions on housing, transportation, income, medical costs, nutrition, child care, family planning, morbidity, pregnancy, infant care, accidents, medication, medical and dental care, chronic illness, disability, handicaps, hospitalization, surgery, prevention, emergency care, health attitudes, mental health, learning problems, community involvement, and other parameters. (Reference: "Health Survey Procedure," National Center for Health Statistics, Series 1, No. 2, PHS Publication No. 1000, May 1964, U.S. Government Printing Office, pp. 66.)

As the Neighborhood Health Center begins operation a series of cohort

studies will be chosen annually. Findings based on social, psychological, clinical and laboratory evaluation may give yields on changes in incidence and prevalence patterns and certainly in use of health services and their costs. In addition, the working of the center as a health service organization, especially its family health team, will be observed and measured. Heart, stroke, cancer, malnutrition, obesity, diabetic and prediabetic, hyperlipemic disorders, genital and cervical dysplasias are examples of expected high interest. Also, neglect in the receipt of health services is expected to be observable.

We also anticipate a spinoff of responses to other questions which up to now have not been adequately answered. In some cases, full studies will be mounted to validate these responses. These questions include the following:

(1) For this type of population with its social and racial characteristics what are the normal values of a series of biological determinations?

(2) Are pathologic values which have a high prevalence often accepted as normal?

(3) What are the costs, validity, specificity, and sensitivity of the tests employed?

(4) Are complete periodic health evaluations worth the time and expense involved?

(5) Does early detection of disease lead to effective control by patient and by physician?

(6) How large is the submerged portion of the iceberg of chronic diseases; what is the prevalence of essentially asymptomatic disease?

(7) Do the screening procedures and health assistance actually allow the physician more time for personalized attention to his patients and/or opportunity for a greater case volume?

(8) What tests should be repeated and how frequently?

(9) Can an innovative use of sophisticated equipment by a new kind of health assistant provide an effective and humane model for outpatient care and represent a technique for avoidance of the impending manpower and hospital facility crisis in America?

(10) Can a combined program of multiphasic screening and comprehensive care provide a mechanism for the effective education of health personnel?

It is obvious that at this stage Meharry has more questions than answers; but we are ready to address ourselves to trying to find some of the answers. The counsel of interested persons is sincerely solicited.

We accept the challenge of the Advisory Committee to the Surgeon General of the Public Health Service on Urban Health Affairs, when speaking of comprehensive personal health services.

The time has passed when action to provide such services could be carried out by compartmentalized institutions and isolated units. Now it

necessary for the various public and private components providing personal health services to come together assure effective delivery of all health services needed by each individual.

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2

PROVISION OF OPTIMUM CLINICAL LABORATORY SERVICES FOR 3,000,000 PEOPLE

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The need for services and consultation in the field of laboratory medicine or clinical pathology is growing faster than the prevalent organizational structure can cope with. This means that new ideas, new personnel, and new organization of clinical laboratories must be developed to improve the quality, extent, and availability of medical care. I wish to outline the nature of the problem, the pressure points, and propose a solution. Our Connecticut regional medical planning program is attacking these problems with a well-organized task force that is studying the laboratory. I do not wish to leave the impression that what I say is necessarily endorsed by them. I am trying to present an overview as I see it.

1. Purpose of a clinical laboratory is to provide services:

- a. for diagnosis;
- b. for health maintenance (screening);
- c. for following therapy;
- d. to facilitate clinical research; and
- e. to provide consultation to clinicians on how to obtain its information and use it.

The diagnosis of uremia, hepatitis, leukemia, and so on are quite easy and require a relatively small number of tests. However, treatment of these diseases with potent agents requires careful day-to-day observation with the use of numerous tests to determine a salutary response or deleterious effect. Without careful testing many modern drugs are dangerous. Physicians who prescribe tranquilizers often have to follow their patients with tests for bone marrow or liver toxicity. Health screening with five, 10, or 20 tests applied to a healthy person each year may be the best and least expensive way to detect many incipient and/or preventable diseases.

2. Rapid increase in growth of laboratories is due to the following factors:

- a. greater use by physicians for reasons above;
- b. the laboratory is necessary for medical care as it is now provided;
- c. laboratory provides assurances that allay anxieties of physicians and patients;
- d. younger physicians use more services than older physicians; and
- e. clinicians ask for consultation more than ever.

The use of more tests for diagnosis, for following therapy, and for screening is leading to an enormous increase in the laboratory workload. In the past we have seen an increase of 10-25 percent per year. The current increase and impending rise appear to be larger. A wider use of conventional tests and a greater use of a large variety of tests reflect the clinician's view of the importance of laboratory data in the practice of medicine.

3. The consequences of providing good laboratory services:

- a. patient care is better;
- b. bed utilization is better (probably);
- c. better use of health facilities for ambulatory patients (probably);
- d. better health screening for incipient and chronic disease;
- e. better health maintenance; and
- f. greater use of laboratory, hence, greater costs per patient.

These points, while not proved, are almost self-evident and suggest that continued accelerated use of the clinical laboratory will occur, unless a shortage of money intervenes.

4. Our current needs are:

- a. more laboratory services, particularly for nonurban areas, for hospitals, and practicing physicians out of hospitals;
- b. a greater variety of laboratory services, including many of the newer, complex ones;
- c. more screening, e.g., a screen for health or its absence, a screen for organ dysfunction, a screen for consequences for drug therapy;

sicians. It provides the necessary data for inpatient and outpatient care, health screening and so on. If sufficiently large, that is, serving more than 1 million persons it would have something like 20 million tests to perform per year. Some current figures for 30 to 33 hospitals in Connecticut are the following:

White blood counts-----	539,000
Differentials -----	417,000
Creatinines -----	42,300
Cholesterols -----	30,800
Glucoses -----	305,900

These numbers may represent only half of what is being done in this State because we have no figures for private laboratories and doctors' office laboratories.

If a machine averages one test a minute for 20 hours per day it can do 432,000 tests per year. The automatic machines of today average fewer than 60 individual samples per hour because they use so many standards and controls. We have built machines that run at 120 tests per hour. It is conceivable that one large automated laboratory can provide more tests than a State like Connecticut (2.8 million persons) can use.

The limiting factor is to get samples from the patients to the laboratory. This can be accomplished through a good systematic approach to the development of a pick-up and delivery system. Return of the data in machine and human readable language to the users is relatively simple and can be accomplished in many ways.

A laboratory that has a sufficiently large workload can run continuously using its experience, personnel, and equipment most efficiently.

To many it is difficult to conceive of the necessity of a total regional laboratory providing many of the services that a community hospital now provides. Two examples demonstrate current clinical practices, that may justify the use of a regional laboratory even for the simpler procedures. A patient is referred to the hospital for an acute abdominal pain. The house staff immediately orders a white count, differential, hemoglobin, urinalysis, blood glucose, urea, sodium potassium, chloride, bicarbonate, amylase, transaminase, phosphatase, and a few other tests. If the patient looks like a candidate for surgery a pint or more of blood will be requested from the blood bank. While a community hospital can do these tests reasonably easily, it will take time. If it is done after 5 p.m. it will take one technologist considerable time. In a large laboratory, several technologists plus a battery of constantly running instruments could do these more efficiently. The quality of the work would undoubtedly be better. Another example relates to the infant who has hemolytic disease of the newborn (erythroblastosis). This child will need most of the above tests plus total and direct bilirubin. The latter values often become the critical measurements used to make the decision for an exchange transfusion. The technologist in the

local hospital can do these tests (involving chemistry, hematology, and blood banking) but often not well enough for the attending pediatrician who looks for the slightest rise or fall in the bilirubin. A regional laboratory could do all of these far more rapidly and accurately.

The objections that community hospital administrators have to a regional laboratory will diminish as the profitable structure of the laboratory diminishes and as it becomes harder to staff, equip, and provide space for an expanding, highly technical area. The pathologists who run these laboratories may find more gratification in truly being the "doctor's doctor" by helping him in a consultative role, particularly as the laboratory data become more complex and harder for clinicians to evaluate and interpret. The opportunity for professional advancement, teaching, and research will be more available.

Physicians practicing in their offices, nursing homes, patient care centers and so on could have more help from a regional clinical laboratory than they get now from existing facilities.

The regional laboratory should be set up so that health agencies could join it on a voluntary basis. They could participate in establishing standards and evaluating its work.

The regional clinical laboratory, the referral, or total type presents a great opportunity to advance the practice of medicine, research and teaching. In order to get started and

develop its full potential it needs tender care and support from hospitals, pathologists, clinicians, administrators, hospital trustees, and Federal agencies.

3

BIOCHEMICAL SCREENING IN MISSOURI

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Advances in automated laboratory techniques have made large-scale biochemical screening a routine admission procedure in many institutions. Screening surveys in hospitalized patients and from the population at large have demonstrated a surprising number of unsuspected deviations from established normal values. The established normal values usually have been derived from small populations unselected for overall degree of health, and not adjusted for differences in age or sex. Interpretations of deviations from established normal values become acute problems when significant deviations occur in apparently healthy individuals.

The advancing age of the American population, together with con-

comitant increase in neoplastic and degenerative vascular diseases has given added impetus to prevention and early diagnosis of heart disease, cancer, and stroke by all available means. Intelligent evaluation of results of biochemical screening in older populations demands additional refinements of normal ranges to include adjustment for age and sex, where these are shown to introduce significant variables. This report presents results of biochemical screening profiles on several Missouri subpopulations, selected to include one group who should be in optimum health, one stable group for long-term study and one group who should show a higher than average incidence of a specific disease.

The subpopulations included in this report consisted of 3,300 patients from Missouri State psychiatric hospitals, 600 healthy college student blood donors, and 360 middle-age individuals selected as high-risk candidates for diabetes by family and past history.

The subpopulations were tested for serum glucose, urea nitrogen, creatinine, SGOT, alkaline phosphatase, calcium, inorganic phosphorus, cholesterol, uric acid, total protein, albumin, and (by difference) globulin. All analyses were performed on autoanalyzers running at the rate of 60 tests per hour using standard auto-analyzer methods. The serum samples were taken 2 hour post prandial in the psychiatric patients, at the time of donation in the blood donors, and

2 hours after a 100-gram glucose load in the high-risk diabetic subpopulation.

Precision error of measurement is shown in table I, together with optimal ranges of test values. The results were processed by an IBM 1410 computer. The results on the psychiatric patients are the initial determinations for an on-going study. Each patient in this subpopulation will be retested yearly.

Test results were evaluated by criteria based on an optimal range of good health. "Normal limits for each test were set for each sex using the 99-percent limits of the distribution curve of the results obtained from the 600 healthy young college student blood donors.

Comparison of the test limits of this healthy group with 99 percent upper limits of the psychiatric patients when

these are broken down by sex and decade showed considerable uniformity in most tests. Uric acid limits were highest in young males, urea nitrogen was highest in old men and cholesterol limits were highest in older women.

A comparison of mean values of test results with age for serum glucose, cholesterol, and urea nitrogen is shown in table II. This illustrates the gradual increase in mean values for these tests occurring in most decades. However, when these mean values are corrected by removing the obviously abnormal values, the mean values for the various groups are much more stable, as shown in table III.

Within the group of psychiatric patients, most of the abnormal results were accounted for by glucose, urea nitrogen, uric acid, and cholesterol. Table IV illustrates the percentage of

TABLE I

OPTIMAL RANGE OF TEST RESULTS AND ERROR OF MEASUREMENT FOR TEST BATTERY

<i>Test</i>	<i>Optimal range</i>	<i>Precision error of measurement (standard deviations)</i>
Glucose.....	60-125 mgm (percent).....	± 3 mgm (percent)
Urea nitrogen.....	4-21 mgm (percent).....	± 0.5 mgm (percent)
Creatinine.....	0.4-1.5 mgm (percent).....	± 0.09 mgm (percent)
Alkaline phosphatase.....	4-15 K.A.U.	± 0.6 K.A.U.
SGOT.....	8-44 S-F units.....	± 4 S-F units
Calcium.....	8.7-11.0 mgm (percent).....	± 0.3 mgm (percent)
Inorganic phosphorus.....	2.0-5.3 mgm (percent).....	± 0.2 mgm (percent)
Cholesterol.....	120-250 mgm (percent).....	± 10 mgm (percent)
Uric acid.....	2-7 mgm (percent) (females). 2-8 mgm (percent) (males)	± 0.2 mgm (percent)
Total protein.....	6-8.5 gm (percent).....	± 0.1 gm (percent)
Albumin.....	3.8-6.0 gm (percent).....	± 0.3 gm (percent)

TABLE II

UNCORRECTED MEAN VALUES

Test	20-29	30-39	40-49	50-59	60-69	70-79	80-89
Glucose:							
Male.....	90	94	101	107	114	109	113
Female.....	89	97	104	106	109	108	112
Urea nitrogen:							
Male.....	12.5	13	14	15	18	23	20.5
Female.....	10.8	11.7	12.6	15.5	16.6	18.8	20.1
Cholesterol:							
Male.....	202	199	205	204	201	189	176
Female.....	198	212	215	225	227	218	207

TABLE III

MEAN VALUES CORRECTED BY REMOVAL OF ABNORMAL RESULTS

Test	20-29	30-39	40-49	50-59	60-69	70-79	80-89
Glucose:							
Male.....	85	89	91	94	96	95	100
Female.....	84	87	91	93	94	94	92
Urea nitrogen:							
Male.....	12.5	12.5	13	14.5	15.5	12.5	14.5
Female.....	10.8	11.7	12.4	13.9	16.4	16.0	16.4
Cholesterol:							
Male.....	171	190	199	199	196	185	176
Female.....	189	202	203	202	203	201	198

TABLE IV

PERCENT OF PERSONS WITH SPECIFIC ABNORMALITIES

Test	Decade						
	20-29	30-39	40-49	50-59	60-69	70-79	80-89
Glucose:							
Male.....	6	7	14	17	25	24	30
Female.....	3	9	12	15	17	20	25
Urea nitrogen:							
Male.....	0	3	4	7	20	44	65
Female.....	0	0	2	9	13	20	28
Uric acid:							
Male.....	19	15	18	13	21	24	10
Female.....	3	8	5	9	10	10	15
Cholesterol:							
Male.....	11	11	9	7	7	4	0
Female.....	9	13	17	25	31	20	13

patients in the various age groups exhibiting abnormal results. An interesting finding is the absence of elevated cholesterol values in the 80- to 89-year-old men.

In the group of 360 individuals selected as high risk for diabetes, nearly 45 percent gave evidence of glucose intolerance, as defined by a serum glucose over 150 gm.-percent, 2 hours after the glucose load. In other laboratory values this group did not differ significantly from the values derived from comparable groups unselected for diabetic histories.

It appears that an optimal range of test values derived from a population most free of degenerative disease represents a suitable standard for older populations and other groups having greater risk of atherosclerotic heart disease and stroke. With the exception of uric acid, and phosphorus values, which are demonstrably higher in young males than in the remaining population, the optimal values and ranges at different decades of life remain quite constant. It appears that age-related changes in biochemical values result most from the progressive inclusion of more abnormal persons with each decade of advancing age and not to changes in optimal values.

This concept appears particularly well documented in the serum cholesterol studies in elderly men. In the group of 70- to 79-year-olds only 4 percent exhibited cholesterol values above the optimal range. In the 80- to 89-year-old group, 0 percent were

elevated. This appears to support the concept that hypercholesterolemia is incompatible with longevity in males.

In this group of psychiatric patients about 6 percent of the test results were abnormal and 30 percent of the patients had one or more abnormal result. By far the most common finding was an abnormal elevated serum glucose. This is in accord with the findings of others and demonstrates increasing inability to maintain glucose homeostasis in advancing age. Whether this is a normal process of aging or a true disease in older persons is presently a subject for debate. The question is more than academic in view of the recently demonstrated interrelationships of glucose intolerance, hyperlipidemia, and coronary artery disease.

In an individual patient the serum cholesterol may not be a good predictor of atherosclerosis. However, on a population basis this value correlates well with incidence of coronary artery disease. In this study an increasing number of hypercholesterolemic patients occurred in each decade to age 70. It is somewhat paradoxical that the mean cholesterol values and number of hypercholesterolemic patients per decade are uniformly higher in women, although the expected incidence of coronary artery disease is higher in males.

Urea nitrogen elevations were generally in the range of 22-35 mg.-percent and were not accompanied by a rise in serum creatinine. This finding documents again the nitrogen

retention of the elderly, and presumably reflects the loss of functional renal mass which occurs between 30 and 70 years.

It is not apparent why elevations of serum uric acid were so numerous at all ages. The initial impression would incriminate the setting of unjustifiably tight optimal limits. However, serum uric acid levels are highest in young males. It is precisely this group that was used to set optimal limits. In as much as the bulk of these populations were institutionalized psychiatric patients, many of the elevations may have been drug induced. In any event, the percentage with hyperuricemia is far greater than the percentage which can be expected to develop gout. No good correlation existed between uric acid, creatinine, and urea. Uric acid was frequently elevated in the absence of elevations in other determinations.

For glucose, urea, and cholesterol the population mean value increased with age. This change could represent either a shift in distribution so that all patients show a rise in these constituents as they grow older, or an inclusion of progressively more abnormal patients in older population groups. Although both processes may be operative, plots of frequency distribution by decade suggest that the latter process is primarily responsible for the changing mean in serum glucose and urea nitrogen. For most tests the majority of the populations change test results only slightly as they grow older. Perhaps those indi-

viduals who change markedly are metabolically less healthy than those who remain constant.

In attempting to define two populations on the basis of blood chemistry findings—those who become “abnormal” and those who do not, it becomes necessary to determine whether “normalcy” is predictive of longer life. The results in octogenarians suggest that glucose intolerance of mild degree is compatible with long life while hypercholesterolemia, at least in males, is not. Differences in morbidity of the two groups must be prospectively observed and correlated with blood chemistry changes in order to test the validity of this hypothesis.

4

A COMPREHENSIVE UTILIZATION AND PATIENT INFORMATION STATISTICAL SYSTEM

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A long sought objective of health planners has been access to an information system for the collection, analysis and processing of comprehensive medical care statistics to guide in the planning of programs. This information should reflect the utilization of facilities and services based on existing demands and must be sensitive enough to measure changing demands and utilization patterns, be they the result of natural phenomena or of intervention specifically directed to change demand or influence utilization. Regional medical programs have a particular require-

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ment for access to patient care statistics and utilization experience to enable them to carry out their mission of developing improved health care delivery to a describable population.

You will note the phrase, “have access to” because it is not felt that the planning effort should be the sole reason for the development of a comprehensive health information system. The approach for regional medical programs then, becomes one of enabling the community to develop a system which would be used for purposes other than that of generating data to be used for planning or program evaluation. The Connecticut Regional Program, working with providers and third party payors, is now studying a new approach to collection of institutional patient service data. This system will utilize, in an unique manner, the existing discharge summary technique to create a comprehensive information system which would (1) serve as a central registry for summaries of patients’ institutional medical histories whose availability is limited to qualified providers of medical care as a guide for subsequent treatment, and (2) generate indexes of institutional performance and effectiveness based on the same patient summary information, and (3) provide the data base for a two phase utilization review screening system for the various institutions in the State.

These three main objectives, it should be noted, are operational

rather than planning objectives and will consequently be of primary value to institutions and programs providing patient services, as well as to fiscal intermediaries and local and State health departments.

This patient-centered information system employing recent computer technology and data processing techniques will include in its first phase the 35 acute general hospitals in the region. Further increments will include chronic disease hospitals, extended care facilities, home care services, and selected outpatient services. Among the collaborating organizations involved in the development of this system are, or will be, the Connecticut Hospital Association, the Connecticut Hospital Planning Council, Connecticut Blue Cross, Connecticut State Health Department, Travelers Insurance Research Center, Connecticut State Medical Society, the Department of Epidemiology and Public Health at Yale University, and the University of Connecticut. The exploratory stage of the "Connecticut Utilization and Patient Information Statistical System" is being done under the aegis of the Connecticut Regional Medical Program so the secondary objectives of data basic for planning and program evaluation will result as a by-product of operations analysis. A report of the first phase of this exploratory stage entitled "A Proposal for a Centralized Computerized System of Statistics for Connecticut Hospitals"¹ was completed last May

by the Department of Epidemiology and Public Health at Yale University.

This report, as the title infers, was primarily concerned with the second of the three main objectives listed above and was specifically focused on the preparation of summaries of service statistics for hospitals, including these indexes and statistics required by the Joint Commission for the Accreditation of Hospitals. In addition to these, selected indicators of the quality of medical care were generated. These indicators were to be presented as comparative indexes for all Connecticut hospitals, and each hospital was to see its own results over time as well. We have no illusions about the perfection of these indicators, but have decided to use them in the light of a statement by Avedis Donabedian, "The methods used may easily be said to have been of doubtful value and more frequently lacking in rigor and precision. But how precise do estimates of quality have to be? At least the better methods have been adequate for the administrative and social policy purposes that have brought them into being. The search for perfection should not blind one to the fact that present techniques of evaluating quality, crude as they are, have revealed a range of quality from outstanding to deplorable. Tools are now available for making broad judgments of this kind with considerable assurance."²

Development is now underway on the utilization review program involving identification of the outlying

case in the first stage and the processing of additional information on these cases in a second computer run before final review by the hospital's utilization review committee.

Further development of the patient's institutional medical history registry is awaiting decision on the patient identification system to be used. Social security numbers have many drawbacks, but for some patients this may offer the best possible unit number. We have decided to use the American Medical Association medical reference number for the physician identification number. This will fit into the medical manpower study now underway in the region—which is matching the American Medical Association tape with hospital appointments throughout the State.³

The proposal also considered the type of discharge summary to be used in the "Connecticut Utilization and Patient Information Statistical System." The form derived differs somewhat from the 1967 professional activities study case abstract form. Additional identifying information for patient and physician will be required, more options for special studies will be allowed, and selected charges from the patient's hospital bill will also be included.

Any information system, be it an institutional medical care information system or one designed to service an industrial production system or an airline, must reflect certain characteristics which we hope to include in the

program presented to you today. These characteristics can be viewed as projected operational criteria for the system. This information system should be (1) comprehensive, (2) accessible, (3) related to reality, (4) timely, and last but not most important, (5) used.

By comprehensive, we mean gathering information about the total institutional medical care system. Reports of patient admissions or discharges will be gathered from every type of institution or organized care program which is usually related directly to an institutional experience: Eventually patient services from hospital outpatient departments, home care programs and community rehabilitation centers should be included. When one leaves the acute, general hospital care facilities, the question of supplementing a discharge summary with an admission abstract is being considered. Such a coverage insures an adequate institutional history in summary form of each patient in the system, and could serve as a basic followup study directed toward the kind of care the patient received after he leaves the acute facility.

The data must be accessible for various analyses by the individual institutions using the program, both longitudinally for one institution's or program's service history and in a comparative sense with the other institutions or programs carrying out the same mission within the State. It becomes central to the success of the

effort that patient service statistics be linked to the institution's financial history. We are fortunate in Connecticut that this latter information is now being generated, at least for the hospitals, by the Connecticut Hospital Association. In this way, some kinds of cost-benefit determinations can be approximated.

The realities the information system must be related to are the characteristics of the institutional medical care delivery system, the skills of the individuals operating the system, and the uses to which the data is to be put. It is probable that Connecticut with its predominately voluntary hospital system (there is actually only one governmental hospital in the State at this time), with its strong system of State-operated chronic disease hospitals and its mixed system of extended care facilities—voluntary governmental and proprietary, will result in totally different information system requirements than are found in other States or other regions. Because of Connecticut's relatively homogenous geography, its small size, and its division into 169 separate towns, utilization of medical services can be tied into manpower inventories, and locations of medical care institutions and services throughout the State.

If these data are going to be used as a management tool, either in the area of quality control,⁴ or as a basis for planning new services or expanding existing services, they must be cast in terms management can understand. Summary reports must be

derived, such as perinatal mortality rates, postoperative infection rates, selected diagnostic specific death rates, etc., so the experience of one hospital over time or of one hospital compared with others can be used as a basis for administration and medical decisions. It is not enough to supply a raw printout with a set of instructions on "how to plow through data with gun and camera." The findings must be presented in a way that is related to the skills of the reader and stated in a way that is meaningful to him.

Because we are paying particular attention to the measurement of changes over time and of the influence of regional medical programs as implemented at different times in different hospitals, the data must be available within a fairly limited time frame, or new programs will wobble along without any evaluative or corrective feedback.

The whole thrust of the "Connecticut Utilization and Patient Information Statistical System" is, however, that various data outputs be used, reused and reused again by various members of the health care team within the state. Data outputs in the form of a variety of reports will be examined by hospital boards, hospital administrators, medical staff committees, and individual medical staff members. When the data is scrubbed of identifying information, it will be used by various planning bodies. Constant use of data makes its gathering less onerous and, if it is critically examined, increases its validity. Data

like fresh fish, does not keep very well and, to compound the metaphor, it must be seen to be believed.

A considerable part of the sizing of services, particularly of planning for beds and supporting facilities, is an application of the basic epidemiological problem of transferring the incidence of a disease within a population into the probable prevalence of the condition in that same population, at any one of various times. Services are used and beds are occupied by the number of people who are sick with a certain condition at any one time. Prevalence predictions can be derived from incidence data only if the length of time the patient requires those services is also known. Once these two pieces of information, then, the input, i.e., the incidence of the condition and the service time, are at hand, prevalence, i.e., the probable number of beds and services required to meet this demand, can be derived either through the application of mathematical models or computer simulation.⁵ The success of this approach has already been demonstrated in the provision of maternity services where both quality⁶ and economy⁷ were demonstrated to be influenced by certain size ranges of these services.

The best source of incidence data for certain conditions is, at the present time, in various registries being maintained by various governmental and voluntary agencies, though little service time data is available from these sources.

In Connecticut, we have already seen the advantages of registry data in planning service programs of various types. It is one thing to try to plan radiotherapy services, for example, in a vacuum without any idea of the load on any proposed system. It is quite another thing to realize that during the years 1957, 1960, and 1964, 1,490, 1,871, and 1,899 patients in Connecticut received radiotherapy.⁸ One then links this data with a very reasonable assumption that in order to mount a high-quality radiotherapy program, there should be a minimum intake of 200 patients a year,⁹ in order to keep the skills of the professional staff at top level. This criterion should then be coupled with a concern for the maximum utilization of the financial resources of the State. If one assumes that these patients receive an average of 20 treatments, one comes up with an approximation of 37,500 radiotherapy treatments given within the State during 1964. Deep therapy machines of various kinds should be able to "produce" some 100 treatments for a 6-hour day, 5-day week, or approximately 5,000 treatments in a 50-week year. (The minimum patient load referred to above would result in 4,000 treatments a year.) Using the quality and production yardsticks then, there should be a maximum of eight or 10 strategically placed radiotherapy centers in the State. The location will be influenced by regional incidence of demand. Manpower restrictions make is extremely doubtful if even this num-

ber can be staffed with qualified professional and technical personnel, but the application of quality and efficiency criteria to incidence and service data does at least result in outlining the parameters of planning.

This same kind of information can be used in determining the size of the services for a variety of other conditions such as coronary heart disease, birth defects, and cerebral vascular accidents. In order, however, to plan these kinds of institutions and facilities in a rational way, we must have first, incidence information and second, service time information. This information can be obtained only through a system such as the "Connecticut Utilization and Patient Information Statistical System."

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5

FLANNER HOUSE MULTIPHASIC SCREENING PROGRAM

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The problem of chronic disease with its insidious nature and usually lethal outcome is well recognized by all who are concerned with the Nation's health problems. Those who have been caring for the disadvantaged population of Indianapolis have been acutely aware of this problem for many years. These low-income individuals obtain their medical care at the Marion County General Hospital and notoriously appear with far advanced, end stage disease.

Flanner House, which is a self-help organization with social service capabilities, serves the needs of many of the disadvantaged people of Indianapolis. Several years ago this organization attempted to attack the problem of chronic disease and conducted a health screening program between 1949 and 1952 with partial success. There were many weaknesses

in this program, one of which was the lack of an adequate followup. However, the principal reason why the project was abandoned was because the examinations were being done almost entirely by physicians, and this source of manpower became exhausted for one reason or another.

As a result of the recently renewed nationwide interest in mass screening generated in part by technicological advances and in part by increased public awareness of the problem of chronic disease, a group of people from Flanner House, Indiana University School of Medicine, Marion County General Hospital, and Methodist Hospital, a local private hospital, got together to see if it would be worthwhile to pursue another health screening program for the disadvantaged population of Indianapolis. The group decided that before entering another large-scale screening program, a study should be done which would be designed to look specifically at some of the problems associated with mass screening. The project was to be on a limited scale and was primarily to be a feasibility study for a possible later large-scale program. Some of the specific goals toward which this project was to be directed were (1) to determine the population's attitudes towards health screening and their willingness to cooperate in such a program, (2) to examine the logistical problem of making the examinations readily available to the people and simple and short enough so that the screen-

ing procedures would not require a great deal of time, (3) to find some solution to the problem of insufficient professional personnel such as nurses and doctors, (4) to devise a system for obtaining an adequate followup and (5) in some way to assess whether or not the amount of previously unknown chronic disease detected by mass screening justified an attempt at a large-scale program.

This feasibility study is currently in operation and has been designed in the following manner. First of all, a group of 1,200 adults living in one of the disadvantaged areas of the city has been selected as the target population. A survey of these people is being done in order to learn their attitudes towards health care, their present mode of obtaining such care, and their willingness to participate in a screening program. The original plan was to have a mobile health screening unit; however, this proved to be too costly. It was thus decided to use the Morgan Health Clinic building which is next to the Flanner House and is reasonably close to the population selected for this initial study. All individuals who agree to be examined are given appointments so that a minimum amount of waiting is necessary. If transportation were not available, it is provided for them both to and from the Morgan Health Center.

In order to minimize the lack of professional assistance, it was decided to reduce drastically the dependance on physicians for the operation of the

overall project. The ultimate aim was to have the entire screening program run by technicians both in doing the examinations and in interpreting the results. In keeping with this decision, tests had to be chosen which neither required a physician to do or interpret. Thus far the only exception to this rule has been the miniature chest X-rays which are being processed through the routine county chest X-ray program and thus are being interpreted by their radiologists.

The tests which were finally selected for this initial feasibility study were height, weight, blood pressure, chest X-ray, electrocardiogram, timed expiratory volume, visual acuity, audiometry, urinalysis, urine culture, cervical papanicolaou smear, serological test for syphilis, blood count, serum cholesterol, calcium, phosphorous, bilirubin, albumin, total protein, uric acid, urea nitrogen, glucose, LDH, alkaline phosphatase, and SGOT. The blood tests are being done at a private laboratory outside the city on a contract basis. The laboratory is completely automated with Technicon SMA 12 equipment. The electrocardiogram is being obtained on an electrocardioanalyser made by the Humetrics Division of Thiokol Corp. This instrument was purchased with funds from the Regenstrief Foundation, which is a private foundation devoted to research in health care. This instrument possesses a digital computer which is programmed to interpret the electrocardiogram and

signifies any abnormalities by appropriate lights on the face of the instrument. The technician merely notes which lights, if any, are lit and thereby interprets the electrocardiogram. Dr. Weldon Walker reported on the efficacy of the electrocardioanalyser as a screening tool in the January 18, 1967, issue of the J.A.M.A. He noted about 20 percent false positive and 3 percent false negative results when compared with routine electrocardiograms interpreted by expert electrocardiographers. Because of the incidence of false positives, we are obtaining routine electrocardiograms on all abnormal electrocardioanalyser determinations. The interpretation of these relatively few routine electrocardiograms represents another minor exception to our goal of not using physicians in the screening program. Our initial experience with this type of diagnostic test has been so favorable that we are about to introduce a phonocardiogram into the screening program. This instrument is made by the same company and utilizes a computer to analyse the heart sounds. Although there has been little experience with this device in adults, several investigators have found it most effective in screening schoolchildren for heart disease.

As a result of consultation with Dr. I. E. Buff of Charleston, W. Va., who has had extensive experience with the screening programs at the national AMA meetings, it was decided that for the sake of simplicity and effi-

ciency, no medical history except for age, sex, and occupation would be obtained during the actual screening examination. Thus, all history taking is being done after the detection of some abnormal test.

The followup portion of this project has been divided into several phases. Those people who are found to have no abnormalities are sent a post card stating the date of the examination, the tests which were run, the fact that all tests were normal and how the results could be obtained if he or his physician might want them at some later date. The post card is designed so that the essential information can be cut out and stored in a wallet. People with singular minor abnormalities such as overweight, or minor hearing or visual difficulties are merely notified of these abnormalities. Patients with all other abnormalities are asked a few questions to find out whether or not they already knew of the abnormality, whether or not they were already under a physician's care for the condition, whether or not they had symptoms referable to the organ system tested and whether or not there was a similar illness in their family. After the brief recheck questionnaire has been filled out, a physician decides whether or not the patient should seek further medical attention at his own expense. The patient can then see a private physician, go to a clinic at the Methodist Hospital, or an appointment for him can be made at a special clinic at the Marion

County General Hospital. This clinic has been instituted specifically for these patients. Approximately 3 months following the referral of a patient for further medical workup, a social worker will call on the individual to check whether or not he truly sought medical attention and to check the results of this medical followup as to the existence of disease.

All data at every step of the operation is being filed at a computer center for rapid retrieval and for any statistical analyses.

Since it was our opinion that very little formal education was necessary for one to function as a technician in a screening program, we felt that the hiring and training of the project personnel represented a unique opportunity to do something about the unemployment problem among these disadvantaged people. Thus it was decided to select the necessary technicians from the target population with priority being given to those who were unemployed or unemployable because of lack of skills or education.

This feasibility study was started several months ago and is by no means complete. However, I believe it would be of interest to present some of the results obtained thus far. Fifty-six persons applied for the technician positions. Thirteen were accepted for the 5-week training program which consisted of training in promptness, alertness to information, dress and personal grooming, office procedures, personal contact with patients, interviewing principles, clinical record-

keeping, knowledge of some medical terms, and lastly the techniques of doing individual diagnostic procedures. All but the last category were taught by lay personnel at the Flanner House. The diagnostic procedures were taught by volunteer physicians. Of the 13 people, nine were finally selected to work in the screening program. Because the technicians at some time might be working with partially undressed women, all technicians were females. Eight of the nine were not working when the program began and four of these eight were heads of a household. Only one of the nine finished high school, four finished some high school and four did not finish grade school. One of the people with less than an eighth grade education has had to be discharged because of unexplained absences. The other three are still working and doing an operating and adequate job. One of them is operating the electrocardioanalyzer and I can personally vouch for her competency.

In the survey phase of the program, attempts have been made at contacting 983 individuals. Eighty-seven could not be reached and 126 refused to be interviewed. Of the 770 people interviewed, 647, or 84 percent, indicated a desire to participate in the screening program. Of the 123 who did not wish to participate, 84 were already under a physician's care while 39 gave no reason for refusing. Appointments for examinations were made for the 647 people who agreed to participate.

At the time this paper was written results were available on the first 300 patients who went through the screening examinations. Almost exactly one-third or 101 people had at least one abnormal finding. Twenty-eight of these people were merely overweight or had some minor visual or hearing deficit. The remaining 73 patients had more significant abnormalities and attempts were made to contact them for rechecks. Thus far 68 of the 73 patients have been reached and 58 of these have already completed the recheck phase of the followup examination. Sixteen of the 58 already knew about the abnormality and were either currently or at some time under medical care for the illness. The remaining 42 patients or 14 percent of the original 300 people screened had no prior knowledge of the abnormality and were thought to require further medical attention. Of these 42 patients 13 had a positive serological test for syphilis, 11 had an abnormal blood pressure and/or an abnormal electrocardiogram, nine had an elevated blood sugar and/or uricosuria, six had a positive papanicolaou smear and two had significant bacteruria. Thirty-two of these patients have been scheduled for the special clinic at the Marion County General Hospital, five patients preferred to see their own physician and five patients are being seen at the Methodist Hospital. The long-term followup is too incomplete to be of any value at this time; however, it is noteworthy that of the six patients

who had positive papanicolaou smears, three have already undergone surgery for uterine cancer.

It is both difficult and hazardous to reach conclusions from preliminary and incomplete data. However, from several points of view the results thus far are quite encouraging. The response from the target population, although by no means universal, has been quite good. Actually less than 20 percent of those people contacted either refused to be interviewed or refused to be examined. Another 9 percent refused to be examined, but they were already under a physician's care and were not the primary target of this project. Actually the small number of people who were already under medical care only serves to emphasize how few of these people see a physician. It is realized, of course, that the approach used in this study to contact the people and arrange for the examinations might be totally inappropriate for any other population. However, we are convinced that any screening program must consider the problem of getting the people to take the examinations and that the less one relies on their own initiative the better.

Our experience thus far indicates that operating a screening program with hardly any direct professional participation is not only feasible but with the present and projected physician manpower shortage is probably the only practical method of screening large numbers of people.

It is also quite obvious that very little formal education is necessary for one to function as a technician in such a program. We would also have to agree that the advances in instrumentation through automation and the use of computers is making screening increasingly practical and probably increasingly accurate. And lastly, our preliminary data indicate that, at least among the disadvantaged people of Indianapolis, there is a significant amount of undetected chronic disease and that further efforts towards examining these people are probably warranted.

6

EXPERIMENT TO TEST AND IMPLEMENT A MODEL OF PATIENT CARE IN HOSPITALS

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Historically, most of the endeavors to increase the amount and quality of nursing care have been attempts to invent new and additional classes of nursing personnel. These efforts have culminated in a form of nursing care in which registered nurses oversee a large number of lesser-trained workers. All of these workers have various levels of training. Since it is a truism that no one can use knowledge they do not possess, nursing care must sink to the level of the worker giving direct care. Thus a plan of care that is conceived by a registered nurse may bear little resemblance to a professional plan by the time it is implemented by an aide or a licensed practical nurse.

To compound the problem, nurs-

ing care often is organized by assigning a task, or a series of tasks, to be carried out repetitiously, and in a stereo-typed fashion, throughout each day by various workers. Thus, nursing assignments commonly are spoken of in such terms as the medication nurse, the treatment nurse, the desk nurse, and similar appellations. Hence, each person's activities on the nursing staff become tightly circumscribed. What is worse is the fact that many persons interact fleetingly with the patient at a time when he is least able to adjust to a wide variety of personality types. Moreover, he seems to suffer an invasion of his privacy far beyond what is called for by the situation. Indeed, because he has so many diverse persons involved in his care, he may become apprehensive that no one is very responsible for or particularly interested in his care.

Since all demands and exigencies of care cannot be foreseen, many activities may go unassigned. Consequently, many gaps in care may ensue. In addition, because the messages about care must filter through many people, these messages may become garbled or not reach their target at all. Much time must be spent in scurrying around the unit to insure that everyone is informed about the necessary care measures for each patient. Under this set of conditions, there is the likelihood of many errors of omission to occur. Thus, patients may be placed in some jeopardy by the very system set up for their care.

If the above describes reasonably

well the present state of affairs in the nursing care of patients, what can be done to improve the situation? To lessen the impact of undesirable features of care, certain conditions will have to be established. They are as follows: (1) registered nurses will have to give direct care to patients instead of through intermediaries; (2) the amount of stratification around the patient must be reduced; (3) care will have to be conducted as a process rather than a series of isolated tasks; (4) means must be established for the daily continuity of care of each patient; (5) the structure of care should provide appropriate opportunities for personnel to communicate effectively with each other; (6) all the contingencies of care, as they emerge, should have a high predictability of being managed with the least amount of confusion; and (7) the structure of care should be such as to enable the patient to identify clearly the kind of personnel to whom he most appropriately should direct specific requests for the care he needs.

In meeting these criteria, it seems best to start with the patient as the focal point around which to develop a care program. Two main kinds of care are necessary. One is of a clinical and therapeutic form; the other is of a nonclinical and comfort type. The primary disciplines involved in the clinical aspects of patient care are physicians and registered nurses. However, with the many distractions that nurses now experience, this clin-

ical service is very uncertain and poorly articulated with that of the physician. The comfort and nonclinical segments of care now are supplied by a wide range of aide-type workers, most of whom are assigned to a very limited area of care. Because so many varieties of task specialists are involved, this part of care is difficult to coordinate. Hence, it is apparent that the total effort of the management of patients is not very well organized. Consequently, patients, physicians, and nurses usually do not have a high degree of social-psychological satisfaction.

In order to construct a model of care that is more useful to patients and which is facilitative of the roles around the patient, it seems most useful to start with the patient as the central concern. Furthermore, a form of care that maximizes the potential for delivering the clinical resources available appears to be the most desirable. Under the patterns of care prevalent in most hospitals, registered nurses are used as clinicians only about 25 percent of each working day. Using nurses in this traditional way artificially reduces the nursing manpower of the Nation. If nurses can be used as clinicians almost entirely, the hours of nursing manpower available for patients could be increased by three or four times without training another nurse.

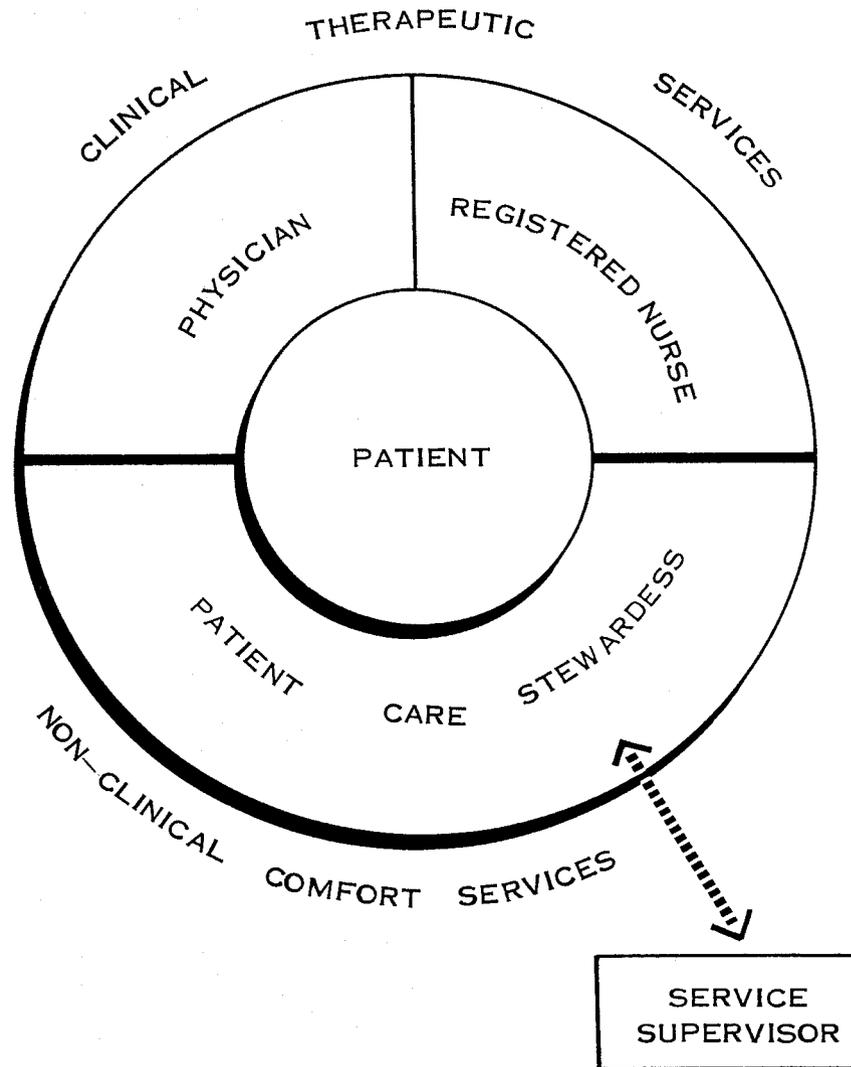
To do this effectively calls for divorcing from the nurse the many activities necessary for inpatient care but which at the same time distract

from clinical practice. Two types of worker are needed. One is of a service supervisor (or unit manager) type. This person will coordinate all the supporting services essential to permit clinical practice to proceed in an uninterrupted fashion. The scheduling of all the activities required for high level care can be done in a more rational manner.

The other type of worker is one who can provide the comfort services, social amenities, and "borderline" therapeutic services needed to complete the circle of care around the patients. As many as feasible of the tasks of direct care now being done by nurses' aides, housekeeping aides, dietary aides, transportation aides, messengers, and other similar types will be collapsed into the activities of this new class of worker. Since these new workers have some analogy to the type of services provided by airline stewardesses, it is suggested that these workers be called patient care stewardesses (stewards).

It is proposed that this tight group of persons—the patient, physician, nurse, and stewardess—be called a clinical unit of care. To be certain that communication occurs with a minimum of difficulty, it is proposed that the same nurse and the same patient care stewardesses be assigned to the same patient throughout the inpatient care period. By working closely with the physician, it is assumed that the therapeutic care plans can be more precise and can be carried out with more dispatch. In

FIGURE 1
CLINICAL UNIT



7

THE USE OF A MULTI-MEDIA APPROACH TO ENHANCE THE LEARNING OF HEALTH SCIENCE PERSONNEL

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One of the major overall objectives of regional medical programs is to enhance the learning of all members of the health care team in order that they in turn will be able to provide better medical care for their citizenry. The 'learner' in this case may be the doctor, the nurse, the medical technologist, the physiotherapist, other members of the team or indeed the patient himself.

The educational package therefore must vary with regard to material content as well as to the level of sophistication of the presentation whether it have as its objective the conveying of information and concepts or the means by which these individuals can develop and/or improve medical skills. It is also obvious

the live work situation, the mutual expectations for each other can be assessed more clearly and can be met more consistently. Fewer gaps in care and fewer errors of omission should be one of the primary gains. In addition, the increasingly scarce resources of nursing manpower should be conserved.

As a means of providing clinical leadership to enable nurses to reorient their practice style to that of full-time clinicians, nurse specialists will be introduced as clinical leaders. These nurse specialists will give care and act as consultants to the lesser-trained nurses. It is expected that the nurse specialists will have a similar effect on nursing practice that medical specialists have had on medical practice.

To test the effects of the model, a control unit, a modified control unit, and an experimental unit will be established in Vanderbilt University Hospital, and in two community general hospitals, namely, St. Thomas Hospital and Mid-State Baptist Hospital. All of these hospitals are geographically close to each other. Each of the units involved in each hospital will be comparable. The control unit will be one that offers the traditional way that care is delivered in that particular hospital. The modified control will have these same characteristics except that a nurse specialist will be introduced as a replacement for one of the registered nurses. The experimental unit will be organized into the above described clinical

units. The purpose of the modified control unit is to control for the effects of the nurse specialist as well as to study whether the specialist or the unit organization produces the most influence on care.

The pilot model and the training for the service supervisors and patient care stewardesses will be developed at Vanderbilt University Hospital. Data will be gathered on the whole process in an attempt to ascertain the effectiveness of the changed organization of care and to examine the refinements that may be needed to make the conditions of care as optimal as possible for patients.

that the format for transmission of this material, as well as the time for learning it, must vary from individual to individual.

With the above requirements in mind it is imperative that the media involved be as flexible as possible and that the use of the machinery involved for retrieval of this information be easy to operate by all students of the health care team.

In view of these requirements, one of the key members of the total health care delivery team should be a so-called educational consultant. This individual should be aware of what educational material is available, in what format, for which level of learner at any given point in time. The educational consultant would be the individual who would write the educational prescription for each individual learner. This individual might be the director of medical education of the hospital or group clinic; he might be the supervisor of nursing education in the hospital or public health agency, or the medical librarian of a medical group or society, or even the health practitioner himself in a remote area. Whoever and wherever they may be, the regional medical program staff should seek them out and alert them to the availability and possible utilization of educational materials. These same individuals should be actively involved in the important process of evaluation of the educational experiences within the region.

Although the distribution, use, and evaluation of these materials is a critical step in the learning process, the production of these materials is almost as critical and expensive a procedure. For this reason, it is imperative that the regional medical program staff maintain an up-to-date catalogue of existing materials as well as an access to effective health science educators, production personnel, and the facilities required to supplement existing materials. Many of the filmstrip, motion picture, or videotape programs could be altered in such a way that they would be more meaningful to a broader spectrum of learners by merely changing the audio portion of the program. By so doing, the major cost of the production (film stock, graphics, special effects, etc.) could be alleviated and the message would have greater meaning to the individual learner in the individual region. For example, by a mere change of the content of the audio track of a filmstrip describing cancer of the oral cavity one could direct the same filmstrip to a dental hygienist, nurse, physician, dentist, or patient. And each would be able to learn the material at his own level and pace.

Although the problems experienced by regional medical programs in the production, distribution, and evaluation of educational programs are more extensive, they are quite similar to those present in any large university medical center whose major objective resides not only in the care of both inpatient and outpatient populations

but also in the training of the heterogeneous student members of the health care team. Such is the case at the University of Colorado Medical Center. In order to effect a more meaningful multimedia approach to the teaching-learning process for our medical center student populations it was decided to establish an Office of Audio-Visual Education in the Health Sciences. This office consists of: A laboratory of medical photography, a film production laboratory, a graphic arts facility, a film and videotape library service unit, an office for radio and television programing, and a projection service unit. The functions of this office are closely coordinated with the multidisciplinary student laboratories (unit teaching laboratories) and a newly constructed Office of Research in Health Science Education. It is these facilities that will serve as one of the primary sites for the production, distribution, and evaluation of multimedia programs for the Colorado-Wyoming regional medical program.

Although this office has been in existence for only a brief period of time, the combined facilities described above have been involved in a wide variety of in-house activities. These include: (1) Televising graduate courses for viewing by both the medical center and Boulder campuses, (2) videotaping gross and microscopic pathology conferences for subsequent viewing by clinical departments, (3) videotaping experimental procedures for demonstrations of portions of the

freshman and sophomore curricula to medical students, (4) producing videotapes to assist in housestaff and student training in the School of Nursing, (5) assisting in evaluation of senior clerkships in pediatrics through the use of videotapes recorded by students, (6) installation of a medical center surveillance system, (7) serving as a regional outlet for the network for continuing medical education, etc. A wide variety of other programs and services are currently either operable or in the planning stage.

Some of the educational avenues that we have explored that might lend themselves to use by the Colorado-Wyoming Regional Medical Program are: The televising of hospital grand rounds with subsequent exchange of videotaped information between hospitals in the region, the production of single-concept films and filmstrips for covering core information to enhance conceptual learning by all members of the health care team in the region, the use of videotainer units to enhance the development of skills by medical students and practitioners and for the improvement of communications at large group sessions or symposia.

More specifically we propose to initiate the following two pilot studies under the auspices of the regional medical program as soon as possible:

1. *A videotape exchange program between hospitals within the Colorado-Wyoming region.* Videotape recordings made by the clinical staff of

hospitals will be exchanged on a weekly basis. The ease of operation of the videotainer units involved in this project will enable the members of the health care team to record and exchange clinical information with a minimal amount of effort on the part of the professional personnel. Clinical areas that will be explored with such a technique consist of hospital grand rounds, clinical-pathological conferences, individual clinical problems requiring consultation with other hospital staffs, seminars, patient home care demonstrations, community public health problems, etc.

2. *The production of a series of single-concept films and filmstrips describing early detection and treatment of lesions related to cancer of the oral cavity.* The format of these educational films and filmstrips will be such that they will lend themselves to the self-educational approach that is a prerequisite for the ongoing acquisition of informational and conceptual learning, as well as the development and use of diagnostic and curative skills. The level of sophistication of this series can be altered in order to enhance the individual learning of the nurses, dentists, general practitioners, or specialists of the health care team depending upon their knowledge prior to the viewing of these films.

At the outset of programs such as these, there are some general problems that concern us all, the solutions to which we must explore together. It is obvious that the above material

USE OF A TELEPHONE NETWORK FOR CONTINUING EDUCATION

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should be made available for use by the widest possible audience of health science personnel within the region as well as between all regions. Attempts should be made to obtain permission to alter program content and sound tracks in order to tailor the educational material to the individual and group needs of the learners. When necessary, copyright limitations should be explored and resolved with minimal compromise to the educational objectives of the program.

Modern computer technology must be applied to the problem of maintaining an adequate catalogue of existing films and videotape topics together with a brief summary of their subject content. This MEDLARS-type system should be an integral part of the planning of all regions with interregional coordination achieved through the support of the Division of Regional Medical Programs.

We must explore the feasibility of using existing television relay towers and systems i.e., State patrol, fire prevention, CATV, etc., in order to extend the radio and television programming for health science education throughout the region. This is especially important in regions such as ours where communications with health practitioners in remote areas poses somewhat of a problem. We should support the studies directed toward determining the feasibility of establishing a network of regional medical program satellites for enhancement of future lines of biomedical communications.

Educational radio and television outlets should be used maximally for transmission of acceptable material for open telecasts for physician and patient education. We need to make better use of our hospitals and medical centers as health learning centers for the lay public. The overwhelming response by the public in the large attendance at science fairs and health expositions points up the desire and unmet needs of the public for health education.

Compatability of both educational hardware and program software within and between regions is essential in order to obtain the best value for the restricted educational dollar.

Throughout the fabric of all of the aforementioned approaches to enriched learning is the vital thread of evaluation, within which rests the potential for improved interpersonal communications. We need to repeatedly ask ourselves how we can improve our educational program content, their methods of retrieval, and their applications to patient care, and then turn to the drawing board to redesign our methods of production and delivery, with one of the basic underlying objectives being the need to enhance the development of the skills of self-education and self-evaluation by health practitioners in order to improve their delivery of health care.

By way of a summary I would like to reiterate several points which have some degree of urgency. First of all we need to move rapidly into explor-

ing the most efficient means of cataloging on a national level the programs (filmstrips, movies, videotapes, audiotapes) that are currently available for use by health science personnel. Secondly, we must seek more adequate funding for the alteration of existing programs as well as the production of new multimedia program material. Thirdly, we need to make every effort to insure the maximal compatibility of both educational hardware and software on both an intraregional as well as an interregional basis. Finally, I would like to encourage the development, training, and reward systems for the key role of educational consultants to health science personnel. Many excellent candidates for such positions are currently on board in our medical institutions without realizing that the needs for their services are urgent.

For several years the Department of Medicine at Syracuse made its weekly grand rounds available by telephone to any hospitals that cared to participate and would pay for it. The impetus for this type of communication came from a former instructor who was serving in the Davis Clinic in Marion, Ind. It posed no real problem as far as the conduct of grand rounds was concerned since we were already using microphones and loudspeakers for improved communication in an acoustically poor room. A question over a separate telephone speaker could be heard as well as one from the audience. Also, in any event, we had already learned to repeat questions into the microphone for the audience in the room. The group at the Davis Clinic was apparently quite enthusiastic about the arrangement, and as they attended "telephonic rounds" weekly they got to know and recognize the people participating in

rounds. As people of our faculty became more familiar to them, it seemed to have more meaning to those in the clinic. Many of our faculty were invited to Indiana to make the acquaintance even closer; and on some occasions, grand rounds were initiated by the clinic and the patients in Indiana were interviewed from Syracuse. St. Joseph's Hospital in Syracuse joined the telephone circuit for the education of their interns and residents. From time to time, other clinics and hospitals participated but many did not stay with it long enough to enjoy it. Some dropped out because of poor reception, others because of cost or because it was an inappropriate time of the day for their physicians.

The telephone connections were not always satisfactory. Sometimes there would be interference on the line; occasionally other conversations would interrupt grand rounds so we would have to cut the connection. The observation was made that visual aids were not greatly needed by the group of well-trained internists listening to medical grand rounds, but they were sorely needed by the interns and residents who could not conceptualize the ideas under discussion without the visual aids. An effort to correct this was attempted by publishing many of the tables and charts of the discussion along with the patient's protocol.

When we accepted the challenge of the regional medical program and the problems of communication

among all types of medical personnel in the area, it was only natural that we would turn to the telephone as the one immediately available method of communication with which we had experience. A small amount of money was provided in the planning grant for a feasibility study on the use of telephone teaching. Cost studies were made with the New York Telephone Co. in an effort to have four 1½-hour programs transmitted to as many hospitals as we could afford. It had been planned to send medical grand rounds, a special program on heart disease, one on cancer, e.g., tumor clinic, and one on stroke over the network. During the period of planning, 11 board-certified physicians surgeons in various communities began to serve as liaison representatives with the regional medical program, and it was planned that they could be an organizing force to initiate programs from their communities concerning the categorical diseases. With this in mind, the decision was made that the telephone network would have to be directed to the communities where they lived, which involved the largest population densities and the greatest number of physicians in the region. There were definite restrictions of the size of the potential network to no more than six to eight stations so that some communities had to be left out of the feasibility study.

While working with the telephone representatives concerning costs of installation it was suggested that

through the State University of New York we might be able to use the group channel of the State, otherwise known as Telepak. We discovered that the State of New York had a Division of Communications of the Office of General Services which rents many lines from the New York Telephone Co. at a greatly reduced rate. They gave us splendid cooperation and a much better network was arranged at greatly reduced cost. More importantly, with this arrangement we could install better equipment using four lines rather than two lines which would improve reception and permit more stations to be involved. It was also found that we could be connected on a 24-hour basis to 12 hospitals for only slightly more money than we could connect six hospitals for 6 hours per week. All hospitals in the network are connected together which permits discussion between hospitals as well as with the University Hospital. Using the State group channel the total charges have been cut from \$3.50 per mile to around \$0.50 per mile. Where the group channel of the State doesn't reach we have had to pay standard telephone rates. This is very important since we now use about 520 miles of communication network. With the information that we could have a 24-hour interconnection, a few communities wanted to join the network when before they had been somewhat skeptical of its value.

Besides arranging for transmission lines we have to rent the speakers and

phones from the telephone company. At first the telephone company told us that we would be unable to use our own amplification system so that we were reduplicating microphones and speakers in the teaching amphitheatres of the University Hospital. This caused considerable confusion on the part of the faculty since we were furnished a kit by the telephone company which they term "Tele-Lecture" which contained poorer microphones and poorer speakers than were already available and the system is clumsy. By various ways technically unappreciated by me we are developing a system that promises to overcome this present clumsy system. It takes lots of patience and forbearance between the telephone company technicians and your own electronic people to reach equanimity. We as yet haven't fully achieved it. In other hospitals the speakers for the system were usually set up in the doctors' lounge for this was the only space potentially available. Many times this offered difficulties for it precluded other discussions by physicians in their lounge and the loud speaker was somewhat resented by some physicians who disdained to listen to the program of the moment.

The system was activated on October 1 and our technical trouble began. Though it had all been checked out by experts and was supposed to be working satisfactorily, they had not anticipated what physicians could do to it. The first difficulty was to get the faculty to use the telephone company

microphones. It required us to hold them about 2 inches from your mouth or speak in a very loud voice—contrary to the microphone and amplification system we had learned to use. There was difficulty turning to slides or to the blackboard for it required holding the microphone in one hand and the pointer in the other. Only two microphones were furnished in the "Tele-Lecture" kit which made group discussions limited for either the leader would have to repeat the question or the discussant would have to the microphone.

As an initial effort the usual clinical conferences and clinical lectures of the medical school were put on the network as well as postgraduate courses given each Wednesday and Thursday afternoon. Regular lectures for laboratory technicians were also rescheduled so that they could be placed on the network as well as occasional nursing demonstrations.

A schedule of telephone presentations is printed each week and sent to the hospitals. In some hospitals they reduplicate it for distribution to all of their staff. In others they simply post it in the physicians' lounge. An effort has been made to evaluate the effectiveness or appreciation of the network by asking those listening to fill out a form indicating the number listening, the quality of communication and the value to the listener.

Because of the technical difficulties a number of programs scheduled did not get on the network and this caused considerable frustration and

antagonism from the listening physicians who sometimes traveled modest distances to attend the program. The volume of some speakers was too low, static and interference occurred and the noise in some staff rooms came over the network. Many physicians had not made arrangement in their practices to have the time to listen. The faculty who were new to a telephone network were somewhat frightened by having to talk to an unknown audience rather than to the group they faced. The physicians on the receiving end were reluctant to participate or even ask questions. As the troubles began to be resolved more regularity of the programs was established and the system began to achieve greater degrees of dependability.

One of the most important dividends the network has paid is that it has made the medical school faculty conscious of the physicians outside of Syracuse. They are becoming increasingly aware of regional obligations which are not always accepted with grace, especially among younger members who are more threatened. On a number of occasions when a grand rounds was scheduled but for technical reasons could not be put on the network, physicians in the other hospitals would start talking to each other and make good use of the network in spite of the medical school. A number of physicians who had signed up for a postgraduate course remained in their own locality and attended the course by telephone

with only moderate satisfaction since they could not have the advantage of visual aids. To our surprise, the lectures to medical technicians, even without visual aids, seemed to be well accepted and appreciated. The nurses in some hospitals apparently take more advantage of the telephone network than the physicians. For example, in one community the orthopedic nurses will listen to orthopedic grand rounds but the surgeons do not. Perhaps the most effective way of evaluation of the effectiveness is the fact that when certain scheduled programs are not being received we very appropriately have complaining telephone calls. A number of hospitals have asked to be added to the network and some have offered to pay for it. We have also received requests for special programs to be placed on the network and especially requests for evening programs.

At the present time we consider this communication approach with a considerable degree of reservation. We have learned that this technique is helpful for the nurses and medical technicians as well as physicians. That we can expect attendance at all the offerings on the network by physicians is ridiculous; we never did expect it. It is available and can be used at the physicians' convenience and no one feels embarrassed or even knows if the communication has been discontinued. We are well aware that it is being used by physicians; the extent and value cannot yet be quantitatively assayed. One of the worries we

had that certain physicians would use it as a pulpit to express their views and interfere with the teaching program has never occurred. Questions from the telephone audience have been proper and illuminating and have contributed to the discussion. As the faculty of the medical school becomes more accustomed to this medium and less fearful of it, it becomes more effective. Its potential has by no means been developed at present. During the coming year we expect to put on evening programs which have been either audio or videotaped from programs given in the medical school and we hope to generate programs from other hospitals in order to get them more involved in the regional concept.



COMMUNICATION RESEARCH UNIT

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employed in the latter connection are, most typically, depth-type interviewing, copy-testing, and Q-sorting—but each problem may require different methods to suit its own conditions.

The unit may begin, for example, by making an assessment of the existing images about heart, stroke, and cancer, in the lay public: that is, to examine not what people know about these conditions, but what they feel about them—what they identify with, what they are apt to talk freely about amongst themselves. In this connection, depth-type interviewing and Q-sorting of some 200 adults in Missouri townships provided us with the following complexes of feelings, that different people feel more or less strongly about:

(1) Some people believe that physical exercise and proper diet are the answers to all health problems.

(2) Most women are worried about cancer. As one doctor said, "there are two major diseases today, cancer and worry about cancer."

These are strongly articulated feelings—one positive, of faith in exercise, the other negative, of considerable anxiety about cancer.

The interviews also indicate that there are two other complexes, of people who ought to be more concerned about matters, but who are not; these are:

(3) Most educated people know much already about heart, stroke, and cancer; but they do nothing about it—if overweight, they re-

main overweight; if they smoke, they continue smoking, and so on. (4) Most of the underprivileged are in a state of chronic apathy or dependency about health matters. They may have much wrong in body and mind, but do little or nothing about it. This is as true about heart, stroke, and cancer as it is about mental health.

These complexes serve as maps for our work in communication: how can we motivate people to be moderate about exercise and dieting? How assuage anxiety about cancer? How get people to be more willing to do something about overweight? How foster independency where there is only apathy at present?

With these maps in mind, we prepare messages for wide use by a regional medical program, pretesting these in various ways, and trying them out under experimental conditions in townships in Missouri. In Smithville, for example, a local weekly newspaper will introduce a campaign, using pre-tested posters, pamphlets, and facilitators, directed to these existing conditions.

Here I have time merely to show you some of the materials:

Slide 1: Poster for RMP

Slide 2: Posters for high school use regarding nonsmoking

Exhibit 1: The package of pamphlets for bathroom medicine cabinets

These exhibits afford some idea of the quality of the messages produced

by the unit, and provide also an example of a facilitator—namely, the package of pamphlets for bathroom medicine cabinets. Most women have cookbooks and recipe-clippings in their kitchen, but few have any pamphlets available dealing with health matters, to which they can readily make reference. We are preparing pamphlets to fit into this (demonstrate) container, which are as effective as we can create them. During restful moments in the bathroom, people will be able to browse quietly through the pamphlets—a constant reminder to them of motions, at least, toward good health practices.

Once messages are prepared (whether they be pamphlets on heart, stroke, or cancer, or newspaper feature stories, or radio or television spots, or audiovisual films) how are they tested for their effectiveness?

Some copies of a pamphlet on one aspect of such testing are available for distribution at the conclusion of this talk.

The method makes use of Q-sorting. Given a set of say 30 pamphlets dealing with heart, stroke, and cancer, such as are published under the auspices of the American Cancer Society, or the American Heart Association, one can invite people to rank them on a scale from +5 (those they would like to pick up to read) to -5 (those they would be most likely not to want to read).

Slide 3: Brochure study

Slide 4: Brochure study

This unit is meant to serve any or all of the projects of a regional medical program as required, by undertaking communication projects which fit into the basic premises of communication. The premises are that messages have (1) to be facilitated in order to bring about action (as distinct from merely being informative), and have (2) to be in tune with the existing state of informal communication of the public—that is, with what people are already talking about, and can identify with.

The staff consists of journalists with a research orientation in the behavioral sciences. Its central idea is that all important messages for the public (lay or professional), however creative they may appear to be, should be pretested for their effectiveness. The pretesting, in turn, depends upon a knowledge of the public in certain communication-theoretical respects. The techniques

These two slides show the results of so testing 33 pamphlets. Only two of these passed muster—they had been doctored by me to make them more effective with respect to the impact of their front covers. Notice that a leaflet on leukemia, which most creative writers would rate highly, is least acceptable of all the pamphlets as far as the lay public is concerned. The photography is excellent, the theme seemingly appealing—but the lay public doesn't want to be reminded this way about leukemia.

You can read further about this method of testing in the pamphlet (available for distribution) to which reference has already been made. What our studies show, however, is straightforward—few current pamphlets pass our tests; all can be greatly improved by use of graphic communication with which people can identify positively. Thus, our most effective cover is for a pamphlet on cancer, which shows a not unglamorous cover girl—even the most hardened hater of pamphlets is attracted to this appealing girl, and is led, however unwillingly, to read the pamphlet.

The unit is currently preparing pamphlets on "How to Stop Smoking," and another on "How to Examine Yourself for Breast Cancer." These are pretested materials of highest possible impact.

The unit is also preparing posters for use in high schools, as part of a nonsmoking campaign in schools.

The campaign in this case concerns

motivating teenagers toward non-smoking. Our studies show that teenagers do not react favorably to communication which is perceived by them as being advice (good or otherwise). Posters prepared for them, therefore, have to contain no copy, i.e. no captions, slogans, or explanatory writing. They can the better, in this situation, project their own feelings upon the graphics. Again, however, the problem of a facilitator appears. We can produce posters with high impact that teenagers will look at and discuss amongst themselves; but how to get action along desired lines is another matter. At present our idea is to experiment with 3 posters (which will be placed prominently in high school premises); in quite small print there will indicate that there are two pamphlets for reference in the school library dealing with (1) How to Stop Smoking, and (2) Nonsmokers. These offer a scientific approach to smoking problems: the only advice concerns courtesy (on the part of smokers); the facilitator is a matter of habit-switching, which teenagers who smoke can try out if they want to.

Work is under way to provide an allied health careers program with a new pamphlet and facilitator to introduce young people to health-related (paramedical) occupations. Intensive-type interviews are currently under way with seniors in high schools.

Preliminary assessment of the pamphlets put out for this purpose by

various medical and public health sources indicates that they are far too academic, and are far too little designed for use with young people who are unlikely to go to a 4-year college.

The unit is also undertaking to provide pretested spots, television shorts, and pamphlets on heart problems—with reference specifically to early warning signs.

In conclusion all our work is research-oriented. Our staff consists of a happy blending of academic and nonacademic personnel; the latter produce the artwork and copy for our messages, whether they be for newspaper articles, pamphlets, posters, radio spots, television shorts, or audiovisual films; the former prepare the maps and provide the tests and experimental designs.

10

COMMUNITY INFORMATION COORDINATORS

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Albany Regional Medical Program

An important element in the operation of the Albany Regional Medical Program is the utilization of former pharmaceutical representatives to provide personal contact with physicians, auxiliary medical personnel, and community groups. Designated as community information coordinators (CIC), these experienced men are providing a continuous stream of relevant information between medical institutions, organizations, and individuals. The community information coordinators are highly motivated in establishing a cooperative arrangement between the medical and allied professions, and the medical college. In the course of their development as successful pharmaceutical representatives, these newest members of the medical college team have had considerable experience contacting members of the medical profession and hospital ad-

ministrators. In this regard, they have acquired specific customs, methods, and mechanisms as to how one goes about establishing an identity with the medical profession. It is extremely helpful that they personally know many of the physicians in the areas where they are serving.

The community information coordinators receive their direction through the medical college regional medical program administration. There are four coordinators; each one is assigned to a specific division with the Albany region. Although these men have office facilities at the college, a major portion of their time is spent in community field activity. They serve as a sounding panel for community opinion and in turn are able to stimulate the formulation of desirable action. They work closely with the medical physicians responsible for activities within their assigned division. Already they have proven their ability to relate well to physicians, auxiliary medical personnel, and hospital administrators.

In the regional medical program, the initial community contact is made by the physician and the community information coordinator representative responsible for that division. Having established interpersonal relationships, the coordinator can then work independently in the community and during his frequent visits with the personnel of the medical college.

The objectives of the community information coordinators are:

1. To identify community physicians and auxiliary personnel with the medical college.

2. To acquaint physicians and other local personnel with the overall objectives of the regional medical program.

3. To gain information concerning educational needs and, more importantly,

4. To increase the physician's index of interest in continuing medical education and at the same time stimulate him to active participation in educational programs.

Intensive prolonged orientation and continuing exposure to the medical college and the regional medical program enhance the community information coordinator's ability to cooperate with community physicians and hospital administrators. The coordinators assist in developing and maintaining an effective linkage between the medical center, practicing physicians, and community hospitals, with the long-term objective of excellence of health care for the entire region. The keystone of the community information coordinators' activity is cooperation and coordination among all essential health resources in the region.

With the aforementioned overall objectives serving as a base, specific responsibilities of the community information coordinators are delineated in 10 categories as follows:

1. *Establishing an identity as a prerequisite to cooperation between the medical college and local communi-*

ties in order to strengthen community medicine.

The regional medical program encourages new patterns of cooperative activity between the practicing physicians, allied health workers, hospitals, public or voluntary health agencies, and the consumers of health services. As official representatives of the regional medical program, the community information coordinators serve as catalysts, especially in the early stages of this interaction.

2. *Physician visitation program for the purpose of promoting cooperative arrangement. This includes data gathering, determining participation, and interest in continuing educational activities and bringing reference questions back to the medical college.*

Within the past few months, approximately 60 percent of the physicians (selected by random sampling) in the Berkshire division of the Albany Regional Medical Program were visited. The purpose of the visits was to evaluate a recently conducted course in basic medical science, to determine interest in continuing education, to encourage participation in the regional medical program and to appraise physician acceptance of the interview technique. In a letter to each member of the county medical society, the president of the society officially endorsed the program. From the standpoint of acceptance, the project was highly successful. Ninety-eight percent of the physicians contacted by telephone consented to an interview. All the

physicians interviewed were cooperative and expressed interest in the regional medical program. It is noteworthy that several physicians who were not included in the original sample personally requested a visit by a coordinator.

3. *Developing liaison between the medical college, and community hospitals, voluntary health agencies and other groups.*

The coordinators closely relate to the activities of the medical college. They serve as community coordinator between the medical college, and hospitals, health agencies, and civic groups. They are directly involved in the cooperative arrangement which is receiving major emphasis in the regional medical program effort.

4. *Disseminating information regarding the regional medical program.*

The coordinators work closely with the medical college physician responsible for activities within the region. They carry information in the community, and in turn convey the feedback of local needs and desires from the community to the college.

5. *Indoctrinating and orienting individuals in carrying out health and educational related activities.*

The community information coordinators are involved in orientation and training of physicians and nurses in operation of the two-way radio network. This service is being extended to include auxiliary medical

personnel, hospital administrators and others.

6. *Assessing attitudes and reactions and evaluating interests at the beginning of the program and at defined intervals as the program develops.*

Justification for the several regional medical program pilot projects is contingent upon findings of review and evaluation. The community information coordinators assist in assessing attitudes and reactions of physicians and lay personnel to the regional medical program. These evaluations are determined through interviews and questionnaires. The coordinators also assist in a comparison of the interrelationships between the medical college, practicing physicians and lay personnel, initially and as the program develops. Survey techniques and instruments are utilized for this measurement. These include data indicating the frequency of participation in activities of the regional medical program as well as evaluation of the cooperation developed among involved groups.

7. *Determining current educational needs and expressed wishes.*

Current educational needs and expressed wishes are appraised by ongoing interviews and questionnaires. The information gained by these techniques assists in the formulation of topics for future educational activity.

8. *Assisting in the preparation and distribution of printed material.*

Because of their close relationship

with the community, the coordinators critically review proposed pamphlets, leaflets, and other descriptive material. They carry copies of printed material, making them available as the occasion demands.

9. *Conducting facility surveys.*

The community information coordinators conduct facility surveys. Radiation therapy, library facilities and teaching facilities of the 86 hospitals in the Albany region have already been surveyed. These studies further augment the regional medical profile on health resources in all areas of the region.

10. *Assisting in designing and evaluating instruments for measurement achievement of the regional medical program.*

The coordinators have assisted in preparing the physician visitation record for the Berkshire division project, and have collaborated with other staff members in designing the physician interview questionnaire that is used in the tricity area of the Albany-Vermont interface division of the regional medical program. In contrast to the 5-minute interview used in the Berkshire survey, the tricity survey involves a 30-minute in-depth interview of all the physicians. This latter questionnaire is structured to obtain information as follows:

- (1) Type of medical practice.
- (2) Extent of postgraduate medical training.
- (3) Availability and need of specific diagnostic, treatment, and rehabilitative facilities.

(4) Availability and need of specific continuing education facilities.

There is an increasing awareness that strengthening of community medicine necessitates total and continuing cooperation of many groups. The community information coordinators fulfill an important role in developing a cooperative arrangement within the region. Their major objective is to establish interrelationships and disseminate information. This is accomplished by communication and visitation with all physicians, hospitals, and key persons in the region.

With a background of having successfully called on physicians for a pharmaceutical company, followed by intensive orientation at the medical college and continuing close association with the regional medical program medical staff, the community information coordinator is an informed person. He works closely with the medical college physicians responsible for the division. He has knowledge of medical college procedures, research activities, and regional medical program projects. He functions as a representative of the medical college as well as a spokesman for local physicians and community hospitals.

As a member of the regional medical program medical team, the coordinator serves as a cohesive force in the efforts to interrelate the local communities and the medical college to accomplish the purpose of the Albany Regional Medical Program.

11

DEVELOPMENT OF RECEPTIVE ATTITUDES TOWARD NEW IDEAS

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From its beginning, the Intermountain Regional Medical Program, which we know as the IRMP, has encouraged a climate of receptivity toward new ideas. We have done this because of our conviction that the overall regional medical program concept requires this openness toward new ideas. The law itself calls for "cooperative arrangements" which obviously did not previously exist. The guidelines, under which we all operate, call for "new means" and I quote (Slide 1) :

... The tremendous growth of knowledge ... is a characteristic of our times ... it calls for the development of new means for coping with steady and dynamic change.

The guidelines go on to call for "innovation" and again I quote (Slide 2) :

... clear intent of the Congress to stimulate initiative and innovation at the regional level ...

In another place the guidelines call for "creative ideas" and that quote follows (Slide 3) :

The regional medical programs present . . . an opportunity to mix creative ideas and creative actions . . .

The passage of the law and guidelines which followed, with the repeated admonition as in the examples quoted, are all a response to the need for spreading excellent medical care more evenly throughout all the regions of this Nation. It followed from that action by Congress that previous means for dispersing care were considered somewhat unsatisfactory. Thus arose the call for "new means," "innovation," and "creative ideas." To stimulate, or to uncover, such new approaches requires a climate of receptivity toward new ideas, an overall attitude that exhibits an eagerness for new ideas and a delight in reacting to them. We believe that we should not wait passively for this attitude to develop, or these new ideas to occur; we believe we can take some new and active measures to stimulate new attitudes toward new ideas.

To illustrate some of the specific ways by which we have tried to create this attitude or climate of receptivity, we are presenting some of our activities which seem to bear on this goal. (Slide 4)

Examples from the IRMP creating receptivity to new ideas:

1. Training-feedback seminars.
2. Revision of administrative structure.
3. Visiting clinics concept (heart and stroke projects).

The first example listed will be described as a direct attempt to create this climate; the second will illustrate how we seem to be getting this receptivity indirectly from an arrangement which was adopted for another purpose; the third and last example will be described as an example of how this receptivity can be built into projects which were organized primarily to provide a needed educational service to the physician. The elaboration of these examples follows:

The training-feedback seminars, an operational pilot project of IRMP, directly exposes a cross section of the groups involved in our program to new ideas in a setting and by a method calculated to enhance the participant's receptivity. The participants, about 50 in each seminar, come by invitation, from our office, from our advisory group, from the medical school faculty who participate in our program, and from those practitioners, hospital administrators, laymen, and others in the region who are involved in some active way with our program. Our resource-faculty are selected, not only for their new and provocative ideas, but also for their ability to interact actively with such a group, interacting both as an extemporaneous speaker or panelist, and as a leader of small groups.

We have held two such seminars (Slide 5) :

Training-Feedback Seminars, IRMP

- | | |
|---|-------------|
| 1. Delivery of medical care. | June 1967. |
| 2. Patient perceptions of medical care. | Nov. 1967. |
| 3. The learning process | March 1968. |
| 4. The science (?) of group dynamics. | ? |

The first was on the delivery of medical care and the second on patient perceptions of medical care. We are planning a third on the learning process and have set the subject for the fourth on the science (?) of group dynamics. The meetings last 1½ to 2½ days—not long enough to solve problems, but long enough to expose ideas in a provocative way, and to provide the opportunity for a variety of people to bat these ideas back and forth, not only among themselves, but also with especially knowledgeable experts from outside our area. We have used small group sessions and panels to facilitate participation and interaction, posing questions and providing a loose agenda in order to make it easy for everyone to air their views. We meet in a retreat situation away from the pressures that disrupt such contemplations in our usual daily setting.

Participants in the seminars are rarely neutral. Some find our format for the seminars themselves disturbing. Almost everyone, however, comes away surprised at some new insight. Many are disturbed by the new ideas they hear, by hearing unexpected ideas from people not previously suspected of having such ideas, or disturbed by new ideas that well up

within themselves. Participants, ourselves included, find themselves recalling and using ideas weeks and months later. Although it is difficult to identify specific results from all of this, we can identify some areas where we have had an effect (Slide 6) :

Results (?), training-feedback seminars, IRMP:

1. Mutual understanding.
2. Change in approach to teaching.
3. Enhanced: interest in IRMP, interest in the RMP concept, and recruitment.
4. New ideas—broader view of our potential.
5. New projects (?).
6. Changed attitudes (?).

We know and appreciate each other's point of view better; we are coming to appreciate the value of each other's ideas and opinions and the need to understand them. We detect a slight effect on teaching methods—and not just in the medical school itself. The seminars have given a definite boost to interest in the program and a strong feeling from the participants that "others should be here; others should know about and be in the program." More specifically, we can see some effect of the seminars locally in enlarging the aspirations of the director of medical education involved in that clinic. The private hospital moved in to fill in the gap when a larger OEO project for the neighborhood area failed to be funded; some stimulation and justification for the hospital's action came from concepts elaborated on at the first seminar. In addition, the

director of medical education at the hospital has enlarged the scope of his position to include this new clinic shortly after our discussion of medical care delivery in our seminar. These results cannot be completely related to these seminars, but we feel these seminars enhance the climate of receptivity to new ideas; they serve to facilitate cooperation and innovation.

The second example to be discussed, the revision of our administrative structure, would seem far removed from the philosophic problem of creating receptivity to new ideas. The concept behind this revision, and the revision is just in its trial stages as the administrative structure in our central office of the IRMP—this concept was directed at an increase in administrative efficiency. We can already see evidence, however, of an additional effect to enhance creativity. The administrative mechanism that we have adopted involves, in brief, the separation of administrative roles and administrative functions from professional roles and functions. Although it sounds obvious to do this, it is seldom done at all, nor is it done well in most medical enterprises even if it is attempted, whether those enterprises are medical schools, doctor's offices, hospitals, or voluntary health organizations. In consultation with a consultant from our university business school we are implementing this concept by redesigning our individual roles and interrelationships so that the professional person is sad-

dled with a minimum of administrative involvement, and the administrative personnel carry almost the entire administrative responsibility. The details are not complete, nor do we know whether the plan will work as we hope, but the details are not important to the point of this paper. We do see already, however, that this parallel administrative structure, which gives a greater recognition, responsibility, and stature to administrative personnel, also excites their interest and enhances their creativity. This has been especially evident in our two-way radio conferences, our stroke program, and our community information project. This administrative structure seems to convey the idea that this is not just a doctor's program with subservient administrative support, but a combined effort of professionals and administrators, each using the other's talents in a manner appropriate to each individual's particular capabilities. It seems to create thereby an atmosphere of enhanced receptivity toward new ideas.

The third example involves an element common to two pilot projects, neither of which is fully implemented yet. Both our stroke project and our cardiac projects include the element of visiting clinics in small (rural) communities. These clinics are held on request of local physicians, held in their community, and involve the local physician's own patients. The clinics were conceived as a medical teaching exercise. The response of

some of the physicians and some of the teachers, however, now suggests that this technique also stimulates a new and closer communication between the academic medical teacher and the practitioner. They both have the opportunity to see themselves and each other in a new and reversed light: the teacher is on unfamiliar ground without his usual panoply of prestige symbols; the practitioner is on familiar ground where he has his local but nevertheless great stature. The practitioner seems to talk more readily; the teacher tends to listen a little more than he does inside the walls of the medical school. Not only does the medical teaching seem to go well, but there is occasionally seen the development of a new and mutual respect for each other. We are seeing requests for help from doctors we never heard from before; some of the requests seem to hold the germ of new ideas. It could even be considered that this byproduct, this new relationship between teacher and practitioner, may be even more important than the visiting clinic teaching service. In these clinics we see, therefore, not only a service but a new type of interaction which will enhance the climate of receptivity for new ideas.

These three examples illustrate ways in which we are attempting to create a climate of receptivity toward new ideas. We view this creation as an active, not passive, process. We take this view in order that we can generate and respond to the "new

means," to the "innovations," and to the "creative ideas" that the Congress and the law wisely call for, and that are basic to the success of the regional medical program concept.

12

THE IMPACT OF RMP ON HARD CORE POVERTY AREAS

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If there is a distinction to be drawn in the magnitude of the problems to be solved in regional medical programs, recognition must be given to the problem of making available to each patient high quality patient care¹, as the guideline dictate, when the patient lives in the poverty area of any one of our large cities.

Unquestionably the problem varies from city to city. Some city poverty core areas are more deeply submerged in the well of deprivation than others. But it cannot be denied that the low income groups within our cities constitute a disproportionately large group for which the latest advances in diagnosis and treatment² are not available.

Although urban low income areas may be geographically closer to the heart of the rapid advances in scientific medicine,³ than rural and suburban areas, actually their economic and social heritage, more often than not, deprive them of equal access. A

low income family may live next door to the most erudite medical center and yet never find access to its services when they are most needed or when they could be most economically and advantageously provided.

No one can deny that in our suburban and rural areas we have a task before us in assisting our medical institutions and professions in capitalizing on the rapid advances of scientific medicine³ but this task generally is quite distinct from economic and social isolation from the primary providers of medical care in our society.

It may be difficult for the rural resident to reach his physician, but in the vast majority of the cases he does have the means. It is one task to create cooperative arrangements whereby the latest information can flow to the local physician and facility, referrals can be made, consultation can be had, and local institutions can be assisted to the highest degree of technical perfection, but it is still another task to fulfill the additional mandate of the program, i.e., to plan and to provide an environment for coordinating the health resources of the Nation in order to assure the availability of the best of medical care to all persons.⁴

Availability implies many things. Basic to this concept is the existence of an open door through which care can be obtained regardless of the patient's ability to pay. It implies a single standard of care. It further suggests that preventive, elective, and

emergency care should be available to all (if we take best of medical care seriously), and it should be available without interfering with the current pattern of practice. It implies an increased knowledge on the part of the low income person on how to utilize care, as well as when and where to get it.

The guidelines suggest that this can be done by introducing program activities which draw upon and effectively link public activities already supported, or supportable in the future through other sources.

Thus, the task of providing an environment for coordinating the health resources⁴ to meet the needs of the urban poor emerges as a special problem. It does so because to solve it, not only must we develop a more effective means of making the latest medical advances available to the medical community that serves urban low income areas, but we must face honestly the accompanying economic and social problems. It requires the coordinating of health services in such a way as to provide basic education to the potential patient on the delivery of health care, and it requires that means other than this program be found to pay for the care once it is delivered.

There are perhaps many ways to plan and to provide an environment for coordinating the health resources⁴ at the local level. It does seem essential, however, that we take full advantage of all the existing health care programs and services that might exist

within each such community if this goal is to be achieved. One approach might be as follows.

On the west coast multiphasic screening has been available to a limited number of organized workers for a period of several years.

The Kaiser Foundation health plan now has more than 15 years' continuous experience with multiphasic screening. For many of its more than a million subscribers such screening is available at little or no extra cost, as a form of annual physical checkup. The tests are utilized by Kaiser, partly as a special service of the health plan, but mainly in the belief that preventive care is the key to optimal use of health resources. The Kaiser multiphasic program has several characteristics which demonstrate some features of particular interest to programs under Public Law 89-239.

More recently the Cannery Workers Union instituted the use of multiphasic screening for its membership.

The tests for cannery workers were done through mobile units which traveled to plant gates. The procedures were a shortened and streamlined version of the Kaiser pattern. They demonstrated once more the importance of case finding in populations inadequately cared for before. These tests also demonstrated the feasibility of referring patients directly to their personal physicians in the medical community at large. Finally, the program revealed the excellent job in health education that

can be done by highly motivated medical students and other workers handling screening procedures.

With this kind of experience, it became apparent that this could be a valuable resource in beginning to construct a program to meet the needs of urban low income areas, at least insofar as case finding is concerned. Mobility of the screening—i.e., making it available at the jobsite, plus time off from the job for the examination, made the cannery workers' experience an unusual success, with a high degree of participation. Parenthetically, this same approach might be used with the farmworker and other low income rural workers.

Participation by the urban low income groups is another problem, however, since they are identifiable more by area of residence in the city than by occupation. How do you systematically involve the low income neighborhoods in the screening, and how do you provide a medical followup on the care once the need is identified? Manpower is frequently lacking for both aspects of the problem. Providing funds for needed medical care is almost always a problem. Fortunately, there are some programs we can call upon for assistance. Although they vary from city to city, elements of many exist in most urban areas.

For example, there can be little question that properly designed and operated, the mobile multiphasic unit can be adapted to heart, cancer, and stroke purposes and used as a training device. Additional support in

some cases is available through the Health Services Training Program of the Social Development Corp., an agency supported by U.S. Department of Labor funding through the Manpower Development Act.

Developing a system of appointments from the neighborhood may be more difficult, but a number of resources can be used. In one urban area, for example, there exist two programs that might be used as resources. One is on OEO health center project which contains budgeted items for community centers, neighborhood aides, and actual treatment. In this program a major purpose of the neighborhood aides could be to arrange appointments for needy persons with the mobile screening unit when it is in the area. Funding also could be applied to the providing of baby sitters where mothers have no one with whom to leave the children during the examination. Efforts could also be made with church leaders, Welfare Department social workers, public health nurses, and other community groups to involve them in arranging appointments.

Another program, providing for neighborhood aides as well as treatment of children, and in some instances their parents, exists in the same community, funded by the Children's Bureau.

Both programs are linked to hospital facilities and are generally supported by the medical society. By coordinating the resources of these programs during the multiphasic

screening, the examination of a large number of low income residents conceivably could result.

It might also be possible for the Cancer Society and the Heart Association to provide additional staff to arrange for the appointments, baby sitting and the necessary counselling to see that the medical needs which are discovered are followed by appropriate treatment.

The providing for payment of treatment will vary greatly from State to State. Obvious programs that can be brought into the overall plan are Medicare, Medicaid, treatment funds available under existing poverty programs, Children's Bureau programs, Veteran's Administration, and other city and county supported facilities. In States where title 19 has been fully utilized, Medicare and Medicaid will normally provide treatment for a majority of the cases.

Thus, when the patient is a welfare recipient or is medically needy, treatment costs usually can be met. For those persons not covered by Medicare or Medicaid, the poverty and Children's Bureau programs can provide additional resources.

Undoubtedly there will remain unmet needs after these resources have been utilized. When these resources are not covered by public or private programs, there will, naturally, be pressures brought to bear on the community to provide additional resources

But if we are to meet the mandate of the regional medical program

guidelines—"to plan and to provide an environment for coordinating the health resources of the Nation in order to assure the availability of the best of medical care to all persons"—the kind of pressure and conflict I have described, based on public need locally determined, will have significant, lasting and salutary effects on the delivery of medical care.

References

- (1) Guidelines, Regional Medical Programs, p. 5.
- (2) Ibid, p. 4.
- (3) Ibid, p. 4.
- (4) Ibid, p. 18.

13

THE ROLE OF THE VOLUNTARY HEALTH AGENCIES IN THE REGIONAL MEDICAL PROGRAM IN IOWA

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The voluntary health agencies that can provide a meaningful contribution to the goals of the regional medical program are many, and vary greatly in their organizational structures, objectives and philosophies. Because of these variations, the appropriate decisionmakers in the regional medical program must join hands with the pertinent individual health agency and jointly, within the limits imposed by the individual agency's objectives and policies, develop the best feasible cooperative arrangements. The important objective is concerned involvement.

Here, emphasis will be placed on two agencies—the two largest in the voluntary health field—which obviously relate directly to regional medical programs. These are the American

Heart Association and the American Cancer Society. Their categorical specializations, their national and regionalwide character, and their well established traditions and experience in research, community programming, and professional and public education, enfranchise them with a unique opportunity to contribute cooperatively in the activities of the regional medical program. This should not preclude other health agencies from providing valuable input to regional medical program activities in a systematic, predesigned prospectus.

The overall impact on the public of the professional, research, and community service arms of the American Heart Association and the American Cancer Society have undoubtedly served to stimulate Government concern and movement into the health field in the categories of heart disease, cancer, and stroke, with particular emphasis on the need to improve the quality of health care delivery, especially at the community level. There has developed a sense of urgency to hasten the translation of validated research results to the service of the people.

It is also important to note that their approach to community programming, through the partnership of providers and consumers of health services, is an approach relatively new to many in the health field. In the Heart Association and the Cancer Society this partnership of physicians and laymen, jointly planning and carrying out programs to meet commu-

nity health needs, is as old as their organizations. They have been making it work for years, while others, Government included, are still struggling with the concept.

The organizational structures of these two agencies in Iowa are such that a wide range of expertise can be brought to bear on their selected objectives. Even though their operations are controlled by a democratic process that flows from the community upward, they have access, through their national offices, to a continuous flow of information and consultation concerning nationwide developments in their respective disease categories.

In Iowa, both organizations played leadership roles in motivating the initial organization for regional medical program and both are represented on our regional advisory group.

One of these two agencies, the Iowa Heart Association, has elected to play an even more active role, having already prepared proposals for two operational grants. One is entitled *A Training Program in Cardiopulmonary Resuscitation*, and the other is entitled *A Comprehensive Program in Stroke Management*.

The primary objectives of the CPR program are listed as:

1. To train and retrain at periodic intervals medical and osteopathic physicians, nurses, inhalation therapists, and rescue personnel in CPR.
2. To establish the community hospital as a training center for all approved groups.

3. To assist hospitals in establishing emergency resuscitation measures within the hospital where the greatest salvage rate can be expected and where victims of cardiac arrest outside the hospital may come to obtain definitive treatment and care.

4. To establish uniform standards of training for all approved groups according to the recommendations made in 1966 by the National Research Council.

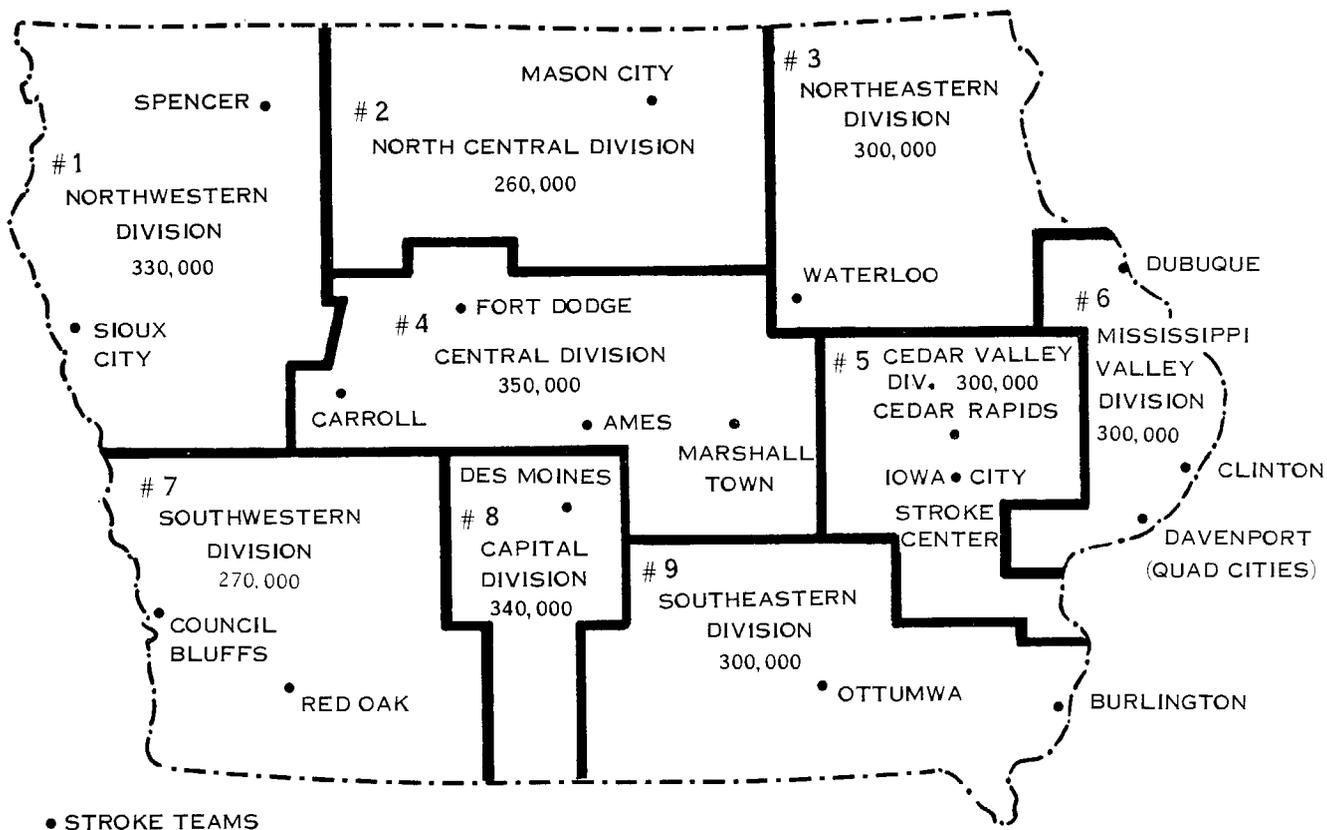
5. To conduct a controlled pilot project among highly motivated select groups of lay personnel in an effort to determine the feasibility and effectiveness of teaching such a program to the general public.

6. To conduct a demonstration study to evaluate the effectiveness of specially equipped ambulances in administering cardiopulmonary resuscitation where long distances are involved in transporting the cardiac arrest victim.

7. To maintain a continuous evaluation of the program to assess the effectiveness of teaching methods, retention of skills of the trainees, and the salvage rate in the community.

For the most part, these are objectives toward which the Iowa Heart Association has been actively programming for almost a decade. It has established a solid base upon which it may reasonably request resources to expand a soundly conceived CPR program, based on well documented experience that results from years of involvement.

FIGURE 1
IOWA HEART ASSOCIATION



The Iowa Heart Association is divided into nine divisions, each with an office, a professional staff member and its own secretarial support. With the support of one additional full-time CPR coordinator at the State level and nine part-time physician

faculty consultants at the division level, the program will be administered through these already existing division offices.

The program will be under the surveillance of a committee on cardiopulmonary resuscitation which will

be directly responsible to the Iowa Regional Advisory Group. It is important to emphasize that the cost of this proposed 3-year program indicates a substantial cost-sharing provision which is to be borne by the Iowa Heart Association, representing its

interest and responsible concern for the program's success.

The second proposal, *A Comprehensive Program in Stroke Management*, is by far the most extensive of the two programs. It is now in the final stages of development and has been approved by the Iowa Regional Advisory Group which recognizes its importance for the entire region.

The plan is to develop 16 stroke teams in Iowa to be located in strategic geographic areas that have established medical resources. Each stroke team will be headed by a physician and made up of the various disciplines—such as neurologist, physical therapist, social worker, physiatrist, psychologist, speech therapist, etc.—involved with the prevention and management of cerebrovascular disease. This team will be hospital based and will be responsible for:

1. Developing and executing a continuous education program for the total management of the stroke patient, including the acute and rehabilitative phases, directed toward physicians, registered nurses, licensed practical nurses, and others, located in hospitals, extended care facilities, nursing homes, convalescent homes, homes of the stroke patient, and to the general public.

2. Providing consultation to the physician for patients upon request.

3. Strengthening and evaluating, on a continuous basis, the cooperative arrangements for the continuity of care, suggesting alternatives for im-

provements, and encouraging the development of needed facilities.

4. Supervising a team of professional nurses to render rehabilitation services to stroke patients in both institutions and homes.

The University of Iowa's colleges of medicine and nursing, through the establishment of a stroke center, will extend their services in the areas of stroke education, information, and training, to support the 16 stroke teams. The need for four stroke coordinators is foreseen for the purpose of methodizing State-local communications, data collection, reports, and scheduling of State resources, as well as assisting communities in the development of the many local cooperative arrangements necessary for a program of this scope. Again, the program will be administered through the Iowa Heart Association's nine existing division offices, utilizing professional staff and secretarial support. The program will be under the direction of a State stroke advisory committee that will play two roles by serving and reporting to both the Iowa Heart Association and the Iowa Regional Medical Program. The proposal is for a 5-year program period and again, the Iowa Heart Association will make a substantial contribution in cost-sharing, representing its continuing interest and investment in the problem of stroke.

These brief descriptions of two proposals serve to illustrate how well they adhere to the spirit of Public Law 89-239. First, we are utilizing an

established system of community organization within the region, eliminating, in so far as possible, duplication of effort, and therefore obtaining what we believe will be the best feasible utilization of the tax dollar. Second, we are demonstrating community interest through the provision of significant local resources, not only in talents and manpower, but in the form of hard cash as well. Third, the programs demonstrate, without question, a regionwide significance. Fourth, the construction of the system is such that it offers maximum cognizance of the various aspects of community needs. Finally, the construction of the system is such that it can bring a wide range of talent and expertise to bear on the objectives.

Following is the detailed description of the many steps that were taken in establishing a regionwide cooperative agreement in the stroke program development:

1. The recognition that more needed to be done in the area of stroke management came from the many communities of Iowa. The membership of local divisions and units of the Iowa Heart Association formulated the needs of these communities into demands to the Iowa Heart Association.

2. The Iowa Heart Association staff recognized that the IRMP may be able to supply the additional resources to enable the Heart Association to meet these demands.

3. The idea for developing a proposal to be submitted to the IRMP

was discussed and approved by the executive committee of the Iowa Heart Association.

4. The staffs of the Iowa Heart Association, the American Heart Association and the IRMP worked together to develop the first draft of the proposal, *A Comprehensive Program in Stroke Management*.

5. The proposal was reviewed and approved by the Iowa Heart Association's board of directors.

6. The proposal was reviewed and approved in concept by the Iowa Regional Advisory Group. However, the group felt it lacked sufficient indication of support from the many State and local organizations that would have to be involved in order to have a successful program.

7. The ad hoc committees appointed by the IHA and the IRAG to study the proposal, met jointly for further review and recommendations.

8. The Executive Committee of the Iowa Medical Society reviewed the proposal and referred it to the society's standing committee on regional medical program.

9. Members of the Iowa Medical Society's committee on regional medical program met with staff representatives from RMP and a representative from the ad hoc committee appointed by RAG, to review the proposal and make recommendations.

10. The Health Planning Council of Iowa met with representatives of RMP staff to review the proposal and make recommendations.

11. The proposal was reviewed by

the categorical consultant to the RAG for the stroke category and the Colleges of Medicine and Nursing, University of Iowa. Recommendations were made and steps were taken to further develop a university based program for training and research to support the comprehensive stroke management program.

12. The proposal was reviewed by the task force committee on nursing, with recommendations for approval and proposals made for a clearer definition of the nurse's role in the program.

13. The executive committee of the Iowa Medical Society voted to support the program.

14. The proposal was sent to local heart associations, area health planning councils, local medical societies, State health oriented organizations, etc., for review and recommendations.

15. Staffs of the Iowa Heart Association and the IRMP developed the final proposal incorporating the input described above.

16. The final proposal was approved by the Iowa Heart Association's executive committee and board of directors.

17. The final proposal was approved by the stroke categorical consultant for submission to the IRAG.

18. Approved by IRAG.

The policies of the Iowa Heart Association have permitted it to provide the initiative and leadership to become integrally involved with the regional medical program. The American Cancer Society's policies appear,

at this writing, to be somewhat less well formulated and flexible, which may inhibit, to a degree, their direct and active participation in regional medical program activities. Nevertheless, we are in the process of developing cooperative arrangements within the scope of their existing policies that will give us the utilization of their talents and experience—ingredients we feel are necessary to our program.

Our experience in Iowa has been rewarding, for here the voluntary health agencies have shown that they have the adaptability and objectivity to adjust to new and changing situations. While the voluntary health organizations must continue to preserve their independence and separate identity, the steps described in the development of the stroke program clearly show that a voluntary agency may develop cooperative arrangements with the RMP and still hold to its traditional philosophy of doing that which is most beneficial to the public which it serves. The voluntary agency in Iowa has become fully aware that the day of "going it alone" must be replaced with the philosophy of cooperative endeavor toward a common goal.

The single largest difficulty facing us all—the one big roadblock toward progressive, effective programing—is the critical shortage of health manpower. The scarcity of adequately trained health administrators and health programers is a significant part of that shortage. One of the principal creators of community health pro-

gram planning is the voluntary health agency. Unfortunately the cupboard is now almost bare of trained individuals capable of doing this work. The voluntary health agency should not be expected to serve as a reservoir of manpower for mushrooming government programs, especially at the expense of its own critical needs. To weaken existing voluntary systems by drawing off personnel to create and strengthen government programs is not creative and does not seem to serve the best interest of Public Law 89-239. We cannot continue to "rob Peter to pay Paul."

How may we attack this health service manpower problem? In Iowa, in cooperation with the voluntary health agencies, we want to develop a program to provide a new and continuing source of individuals capable of serving the community health care systems. The basic objectives of the RMP and the voluntary agencies are much the same. We need personnel with similar qualifications, trained to carry out comparable roles. Together, we hope to develop a 6-month intensive academic program in community health organization and service programing, to be based at the University of Iowa. This will be integrated with a further period of field service training activity, particularly in association with operational activities as outlined in this paper. The program should be coordinated with the national offices of the voluntary agencies and the regional medical program. It will be tuition supported and

it is hoped that regional medical programs and voluntary agencies will enter staff members in the program while retaining the members on their payrolls as part of a work-training development. It is foreseen that the voluntary agencies will play an active role in the development of the curriculum and even provide members of their staffs as consultants and part-time instructors.

In the development of the curriculum, every effort will be made to introduce the best of the newest concepts in program planning and to retain only those traditional concepts that are adaptable to our changing health systems. Serious consideration should be given to what has been labeled the systems approach to learning. This approach may well provide a new formulary for learning. In our educational systems we have tended to develop systems aimed at establishing laws and principles to guide our professional conduct and to serve the needs of society. Today we are in a situation where we must adapt to and learn from rapidly changing systems and such things as established laws and principles may be no longer inviolable. When we apply only traditional techniques to rapidly changing systems we simply participate in a process of learning things which may no longer be applicable. Our teaching activities should increasingly focus on the new needs and demands being placed on our health care system. We must tool up for the future.

This proposal aims to bring some

prompt relief of our manpower shortage by combining intensified study with field experience. Appropriate academic recognition will be given. The key to success will be the development of individuals who will be able to operate knowledgeably and efficiently in an environment of continuously changing health systems.

There are many other possible cooperative ventures that could be discussed. In fact, there are no roads that regional medical programs can take that precludes the American Heart Association or the American Cancer Society from making significant contributions.

In Iowa we have fully recognized this fact and have developed the foundation for action in what we believe will be a long and productive cooperative arrangement with the voluntary health agencies.

14

SMALL COMMUNITY PLANNING

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This is a report on the solution of a practical planning problem faced by the Washington/Alaska Regional Medical Program. This approach seems particularly applicable to the small, isolated communities for which it was designed, but there may be elements in this system which are applicable to larger communities as well.

With the exception of four urban areas, the Washington/Alaska region is characterized by small, semi-isolated, self-sufficient and independent communities. There is only one voluntary health facility planning agency. It has served the Puget Sound urban complex for about 6 years, but because of its limited budget it has served primarily to sponsor and to assist the metropolitan hospitals with their planning and to coordinate their development plans. Comprehensive health planning is a new idea in our region, and formal planning of any kind is not common in most of our smaller communities.

With the passage of the medicare law, Public Laws 89-239 and 89-749, there was an awakening of interest in planning for our region. This was reflected in our original grant request which sought financial support for area planning. When this request was granted we became the only agency in Washington and Alaska with both health planning interest and sufficient funds.

Soon after our program began we were swamped with requests from smaller communities to conduct planning studies for them. It was evident by March of last year that we could not employ trained planners fast enough to fill the requests, and we were not sure we ought to proceed with planning studies not directly related to heart, cancer, and stroke. Our philosophical commitment to local initiative and local control led us to the conclusion that our best solution to the dilemma was to assist local communities to plan for themselves. How could this be done: when most communities did not have trained planners or the money to pay them; their health leaders were unfamiliar with the planning process and were not anxious to accept additional responsibilities. We believed the problem might be resolved if we could find or design planning guidelines which could be used by untrained community volunteers, acting for a local decisionmaking body (which we could help form), composed of and representative of the

effective leadership of the community.

While we were thinking about this problem, a physician member of our advisory group asked us to study Okanogan County where he was in practice. In doing so, he provided us with an opportunity to design a tentative set of study guidelines. Even though a community-responsible decisionmaking group had not been formed, the doctor was eager that we proceed as rapidly as possible. While he searched Okanogan County for a victim, we searched the literature for procedures adaptable to the establishment of guidelines which would enable a member of the local community with no previous applicable experience to successfully gather the basic data relevant to health service planning.

Our literature search proved quite disappointing. Nowhere did we find a clear and logical explanation of the reasons, processes, issues, or methods used in planning. Moreover, all the guides we reviewed tended to:

1. Require unusual expertise to gather and classify the data.
2. Call for the gathering of much more data than could reasonably be classified, interpreted, and used.
3. Call for the gathering of much information not relevant to the purposes of health service planning, while leaving out much information essential to planning.
4. Require the completion of extensive questionnaires. A 100 percent return with reliable answers seemed

impossible using such questionnaires, and 100 percent returns in small community planning seemed essential.

We turned, then, to a depth analysis of the purpose of health service planning. It seemed to us that the purpose of gathering information was to provide bases for selecting alternative actions designed to initiate or control change. This judgment led us to conclude that surveys ought to be conducted only under the auspices of a decisionmaking group, which can, in fact, act to initiate or to control change. Equally important, however, this judgment led us into a definition of a logical planning process (or sequence of activities) and thence into a relatively simply system of classifying and handling data.

First it seemed to us we should not confuse the provision of patient service with service to providers, or support of providers. Thus we separately classified research programs, educational programs, training programs, financial support programs, and patient service programs. In the initial stages of planning we believed our small communities should concentrate on patient service programs. The others are really resources for changing patient service programs and should be studied as parts of the alternatives for accomplishing changes once goals are decided upon.

We thought it advisable to gather information only on organizational units. Even solo practitioners have an office staff which, together with themselves, constitute a semipermanent

nent organization. Health professionals not in the labor market (housewife nurses for example) only become patient service providers as they enter association with an organization, and organizations can be expected to replace people who leave. Organizations are thus more visible, permanent, stable, and responsible than individuals.

We finally decided that the decisionmaking group would need to be provided with three classified sets of information:

1. A description of the people of the community (relevant to health care).

2. A description of the existing resources (i.e., patient service program providing organizations) available to care for the people.

3. A description of possibilities for new or different programs.

I hope these condensed titles imply the scope of information contained in the reports we had in mind. We made these particular classifications in order to lead the decisionmaking group in setting goals and standards and viewing alternative methods for their achievement. We decided that the concepts of need and demand were too abstract and interrelated with resource availability to be relevant to small-community planning, so we substituted the concept of standards and goals. We believed our small community decisionmakers could list and evaluate what was available for patient service and how it was being used to serve the patients

of the community. We believed they could reasonably predict the changes in their population and forecast the development of their present patient service provider organizations. We thought they could think about what might be and decide what (in view of their own resources, values, and aspirations) ought to be. The goal would then be defined by subtraction of what was, from what ought to be.

Since, in Okanogan County, we did not as yet have a decisionmaking group, we postponed the design of guidelines for a demographic analysis until such a group could be formed, and concentrated our efforts on the design of guidelines for the resources survey.

A draft of the resource survey was completed in April and mailed to the surveyor. The doctor had selected the wife of the local high school principal. She had no previous experience in the health care field and had accepted this task as a favor to her doctor friend, as well as to earn a little supplementary income. She felt quite inadequate to complete the survey; she ran into much opposition from people who had not been informed of the study and were not convinced of its usefulness; she was not sure why the survey was being done or what the regional medical program had to do with it. She flatly refused to make some of the subjective judgments called for in the guidelines, but she did gather the data. Moreover, she did it in 2 months of part-time work, without supervision

and on her own initiative, after 1 hour's orientation, at a total cost of less than \$250. (She asked for and was paid \$2 per hour plus milcage.) She stopped short of organizing the data into final report form (the guidelines stopped there also), but it is all there in usable form and containing the relevant information for decision-making.

The first draft guidelines she used were full of bugs. They were, however, especially designed to recover decision-basic information and to exclude technical information meaningless to nonprofessionals. The first task called for was the definition and verification of area boundaries from locally available information. The second task was the simple listing of research, education, training and patient service units. For each unit listed, then, the guidelines called for a description of:

1. The type and volume (utilization) of services being provided.

2. The present total capacity to provide each type of service.

3. Existing plans for change.

4. Service quality (as evidenced by licensure, specialty boards, approvals, accreditations, awards, reputations, etc.).

5. Existing and planned interrelations with other health care resource units.

The guidelines also called for subjective judgments by the surveyor on:

1. Modification potential: The willingness and ability to (a) Expand or reduce present programs,

and (b) Develop or accept new and different programs.

2. Potential for the development of new cooperative relationships with other resource units.

While the Okanogan County study did not demonstrate that small communities can conduct their own effective area health planning program, it did demonstrate to our satisfaction that they can gather the information necessary for planning decisionmaking without full-time planning staff, and at very low cost. We feel a better developed set of guidelines, along the lines we have suggested, with minor consulting advice, will make it possible for the smaller communities of Washington and Alaska to responsibly control their own health service development without major subsidy.

Now that we have evidence that our concept is feasible, we are assisting one other community to form a decisionmaking body and are planning to develop a handbook for the guidance of local planning bodies who do not have planning staffs. We intend to continue offering assistance to interested local groups who request it until the state comprehensive planning agencies are able to assume this function, after which we hope to concentrate on planning for the integration of heart, cancer, and stroke programs among the communities.

Our brief experience with small community health service planning leads us to believe the steps listed below are appropriate for the development of an effective planning pro-

gram, and in the future we will try to influence those who seek our assistance to follow these steps.

1. Gain the acceptance of those involved in the provision of health services.

2. Inform the public of the need for and importance of rationally controlling change, for planning presupposes willful change, which requires public support.

3. Form a decisionmaking group (planning board) composed of, or representative of, the effective leadership of the community. These people will be called upon to make decisions in the best interest of the entire community. They should be those people, therefore, whose decisions will be seen by the vast majority of the community as just, in the community interest and the proper basis for action toward change.

4. Orient the decisionmaking group to its functions and responsibilities.

5. Suggest that the decisionmaking group arrange for volunteers to gather data as outlined in the RMP guidelines.

6. Suggest the decisionmaking group view what might be available against what is available and decide what ought to be available, then formulate goals.

7. Suggest the decisionmaking group analyze alternative methods of achieving goals and select courses of action.

8. Suggest the decisionmaking

group implement the selected courses of action.

We have described a pragmatic approach to the problem of initiating community health service planning in small, widely dispersed communities without previous relevant experience and without the capability to employ trained planners. Our approach involves:

1. Assistance in the development of a potentially effective decisionmaking group to serve as the planning board.

2. The simplification of the more common urban planning process for relevance to small community decisionmaking.

3. The provision of written procedures for the guidance of volunteer, nonprofessional information gatherers, and

4. The classification of information with the special purpose in mind of leading the decisionmakers through a logical decision process to the formulation of realistic goals.

Our Okanogan County experiment has satisfied us that nonprofessional volunteers can (with written guidelines) gather relevant information at low cost, and our experiences in other communities convince us that local health planning boards can be formed, and can deal effectively with local health development problems.

Ruth Benedict¹ has said that "No society has yet attempted a self-conscious direction of the process by which its new normalities are created in the next generation." If that be

true, then all of us here today are making history. We hope that we at the Washington/Alaska Regional Medical Program have helped devise a way for the small communities to participate in this history making, and in doing so, to contribute to the maximum possible improvement of heart, cancer and stroke patient care for the residents of their communities.

Reference

- (1) "Patterns of Culture," Ruth Benedict, Mentor edition, p. 234, 1934.

15

COORDINATION OF COMPREHENSIVE HEALTH PLANNING AND REGIONAL MEDICAL PROGRAM ACTIVITIES IN WESTERN PENNSYLVANIA, 1967

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One of the most frequently asked questions in health circles today is one regarding the relationship between Public Law 89-239 for regional medical programs and Public Law 89-749 for comprehensive health planning, the implication often being that these two programs are in some sense rivals and that one must necessarily destroy or replace the other. We in western Pennsylvania have not subscribed to this belief, but instead have chosen to take the statements from Washington at face value; namely that there is no con-

flict, that both are made flexible to insure this, and further, that RMP is not just an agency for dispensing funds, but rather is to act as a catalyst in promoting whatever cooperative arrangements may be helpful in developing better means for delivery of health care. Accordingly, in the late summer and early fall of 1967, when it became evident that there were many groups and agencies in western Pennsylvania interested in the development of "749", but each a little suspicious of the ambitions of the other, and actually none fully capable of developing the planning grant application alone, the decision was made that RMP would be willing to act to coordinate all their efforts and father the program.

The Allegheny County Health Department called a meeting of these interested groups, and when this plan was presented, to have RMP coordinate their efforts, I am happy to say it was enthusiastically endorsed by all present. All agreed that what was needed seemed to be a program to explain Comprehensive Health Planning to various health care groups in our region, get their reactions and opinions, and stimulate their interest in drawing up an application for planning funds. Time was short, because at that time in mid-September, the January 1 deadline still applied. As the most effective way to reach a large number of people in the shortest possible time, it was decided to have a seminar and workshop on comprehensive health planning. An

ad hoc committee was formed with Mr. Dan Macer, chairman of our advisory committee as its head, and membership composed of a representative from each of eight other interested groups. Each group supplied some clerical and secretarial help, and Dr. Cheever, vice chancellor of the University of Pittsburgh, assigned Dr. Anne Pascasio to work full time on the project. Under her organizational ability, energy and tact, the program rapidly took shape. Guest lists were prepared representing all parts of our region as well as neighboring states, and all conceivable interested groups, organizations and agencies. Space was obtained in a conveniently located hotel, and the program organized. After only 5 short weeks of really intensive effort, when the big day dawned November 6, everything was in order and ready to go. By 10 a.m., well over 400 people had registered and expectantly awaited the opening speaker.

The program followed a standard format: Orientation and educational talks in the morning; an inspirational message at lunch; small group discussions in the afternoon, and a 1-hour windup with comments from the floor and motions at the end of the day.

The primary speaker of the day was Dr. James R. Kimmey of New York City, regional health director for Region II, Department of Health, Education and Welfare. Dr. Francis S. Cheever, vice chancellor for the Schools of the Health Professions,

University of Pittsburgh, pointed the way, speaking on "purposes and expectations of the conference." Mr. Robert Sigmond, executive director, Hospital Planning Association of Allegheny County, spoke for health care facilities; Mr. John McCormick, associate executive director, Health and Welfare Association of Allegheny County, for community health services; Dr. Matthew Marshall, president, Allegheny County Medical Society, for health practitioners; Dr. Waldo Treuting, director Allegheny County Health Department, for health manpower and training; and Mr. H. Alan Speak, assistant director, Southwestern Pennsylvania Regional Planning Commission, for other planning agencies. After our luncheon message from the Honorable Joseph Kelley, Secretary to the Governor of the Commonwealth of Pennsylvania, the 400 recessed to 10 discussion groups where questions were asked and hopefully answered, challenges made and met, charges made and refuted, opinions expressed, emotions ventilated and whatever else goes on in vigorous discussion. Late in the afternoon, everyone reassembled for Dan Macer's windup session, and under his skillful leadership a mandate took shape: To enlarge the steering group with at least one person from every county in the region; to proceed with writing up an application for the entire region, though the planning should be subdivided into smaller subregions to better serve local needs;

and for each person in attendance to report back to his own area and organization what he had learned and done.

When everyone had recovered and the dust had settled, just what had been accomplished? There is no doubt that the defined goals were achieved: (1) To transmit information to the participants about "749" and its anticipated effects. It was transmitted. (2) To motivate the participants to return to their home areas and organizations to stimulate interest in a comprehensive health planning program for the area. Their excited talking after the meeting left no doubt that they were stimulated, and their followup action has certainly indicated that they were motivated. (3) To recommend a followup mechanism which would establish an organizational pattern and process by which an application could be prepared. It was indeed recommended, and is being carried out.

In addition, there were certain fringe benefits which accrued to RMP. We achieved some status and recognition of our position as an effective catalyst for bringing together health care groups and organizations. We earned a position of leadership in the development of a comprehensive health planning grant application. Regional medical program and comprehensive health planning will grow and develop together, each supplementing and complementing the work of the other. Thus, the traditional cooperation between the pub-

lic health aspects and the private practice aspects of medicine will be continued. We in RMP have had yet another opportunity to meet the people of our region, and find out how they feel and what their hopes and aims are.

At present there is a seven-man committee headed by Howard Hough, associate director of regional medical program, busily drawing up the comprehensive health planning grant application. The appropriate advisory group is being formed, selected from throughout the region, and it appears that regional medical program has fathered a healthy and viable infant.

16

COMPLEMENTARY RELATIONSHIP BETWEEN IOWA REGIONAL MEDICAL PROGRAM, COMPREHENSIVE HEALTH PLANNING AND VOLUNTARY COMPREHENSIVE HEALTH PLANNING: A NECESSARY ACCOMPLISHMENT

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Iowa is in a unique situation enjoyed by few of the more populated States in that our organized health planning is in its infancy. Thus, the development of close-knit cooperative arrangements between the Iowa Regional Medical Program and State and regional health planning agencies is both enhanced and unencumbered by existing patterns of operation or organization. I would like to stress that this advantage was recognized at the very outset as was the need for close coordination between the Iowa Regional Medical Program and emerging regional health planning organizations.

This situation and its recognition lead to the basic premise of this paper. The basic premise is that the activities and programs of the Iowa Regional Medical Program may best be translated into regional and local reality through cooperation with and stimulation of health planning groups serving our region.

It would seem that one of the most difficult tasks we will face in the regional medical program movement will be to reach the community with sound operational programs which may be translated into action according to the community's needs and methods of health care delivery and medical practice. I am sure that many will recognize the potential dilemma which is evident in the foregoing statement. On one hand, we would like to see developed programs which will have the broadest and most beneficial effect on the categorical diseases we are attempting to combat. On the other hand, we are attempting to develop programs which may be adapted to the specific needs and methods of health care delivery and medical practice prevailing in the community. Thus, we see the potential for fragmentation and inefficient programs should the adaptation process go too far in the latter situation, and potential rejection or poor response by professionals and/or the community where adaptation is insufficient in the former situation. Obviously, we will attempt to devise operational programs which fall between either acceptance extreme.

Otherwise, we will find ourselves with a plethora of well-conceived and beneficial operational programs which are either never set into action or never reach their potential. I would submit, however, that the possibility of fragmentation with its inefficiencies is the lesser of the two evils, and that we must involve the local health professionals and the community at large in the development and instigation of regional medical program operational activities.

One method of involving the professionals and the community at large is to approach the community or region through its respective health planning organizations. We in Iowa recognize the concurrent development of health planning and intend to utilize its potential as a means of reaching the community with operational programs. Indeed, we would hope that the same channel would provide a means for community initiative in regional medical program planning activities. It behooves us to assist in the development of both the planning agencies and their potential at the very outset rather than develop a massive collateral and perhaps duplicative channel to the community. Furthermore, the community with such a planning agency would appear to represent a more stable environment for the instigation of Iowa Regional Medical Program operational programs. Therefore, we have begun to encourage the development of planning or-

ganizations in Iowa and to utilize these organizations as a means of reaching the local community.

To turn to some specifics, there are three major organizations involved in developing what we might call a super cooperative arrangement. These organizations are the Iowa Regional Medical Program, the Iowa Comprehensive Health Planning Agency and the voluntary Health Planning Council of Iowa. As a point of reference, the Comprehensive Health Planning Agency under Public Law 89-749 is lodged in the Iowa State Department of Health and will function as a staff organization within the department. Before the agency was designated the Iowa Regional Advisory Group contemplated their involvement and membership. With passage of the legislation and designation of the agency by our Governor, a seat was established for them.

The Health Planning Council of Iowa is a statewide organization of a voluntary nature which has become interposed between the official State Comprehensive Health Planning Agency and local voluntary health planning groups. To date, this organization has been primarily involved in stimulation and assistance of communities in developing comprehensive health planning organizations. Negotiations are presently underway to establish a cooperative arrangement between the Health Planning Council of Iowa and the State Comprehensive Health Planning Agency

which will enhance the State agency's means of reaching the community for effective action. The Health Planning Council of Iowa has also been represented on the regional advisory group from the outset. Furthermore, early agreement was reached to establish a cooperative arrangement between the Iowa Regional Medical Program and the Health Planning Council of Iowa.

Although final approval of the plan for the Iowa Comprehensive Health Planning Agency has not been announced, it is fully contemplated that there will be effective cross-representation at the highest level between each organization involved in the "super cooperative arrangement." Furthermore, our mutually agreed upon goal, in the operational sense, is to develop joint informational sources, share information developed internally, provide a ready organizational means of communication and cross fertilization and to coordinate compatible programs and efforts. In short, we are all striving to develop a complementary relationship which will avoid duplication of effort and provide a mechanism whereby we might mutually discuss and resolve inevitable conflicts which will come up from time to time. Obviously, specific interests and operational goals of each of the three major participants vary somewhat. . . . However, our overall goal is essentially the same and binds us together in the common cause of developing a suitable means of providing the best and the latest

in health care and medical services to the population within the confines of the region and the State of Iowa.

Recognizing that the paramount cooperative arrangement described is necessary in order to establish coordinated activities, it is necessary and desirable that the arrangement assist us as a regional medical program in establishing a channel to the local community. One might ask why we should not indiscriminately go directly into a community, approach individual groups or institutions and discuss proposed operational programs. There are several reasons why such an approach may be ill-advised. First, the risk of compounding unknown professional or institutional rivalries is evident. Second, it is seldom possible to identify representative groups or institutions within the community. Third, in cases where there are established health planning councils, reason suggests that first contact should be made with the health planning council on the assumption that it is representative. In any event, little risk is involved and more adequate representation may be requested at a later time should it be found deficient.

At this juncture an obvious question might be raised: What if there is no established health planning organization in a given community? In this instance either of two opportunities will become available. The Iowa Regional Medical Program may request the Health Planning Council of Iowa or the Comprehensive Plan-

ning Agency to contact or arrange a meeting with groups and institutions which are representative of the community or region.

We are presently in the process of jointly developing specific methods of working through the Health Planning Council of Iowa to reach communities which have local health planning councils and those which do not. In this regard, the Health Planning Council of Iowa has notified local planning groups that they should expect Iowa Regional Medical Program contact with respect to operational program planning. In turn, the Iowa Regional Medical Program is urging the full development of local planning groups which are representative of both the health professions and the community at large. Thus, we have tangible evidence of both the product of the cooperative arrangement and the means by which our organizations may complement one another.

In this brief paper I have attempted to illustrate the basic nature of the complementary relationship as a necessary accomplishment and the cooperative arrangements which are an element of that relationship. I would like to stress that the relationship and cooperative arrangement is dynamic in nature. They must be continually nourished if they are to survive as tools for accomplishment of our regional medical program goals. Furthermore, it is simple enough to state in legislation that the purposes of the regional medical program will

be accomplished through cooperation arrangements. However, we must keep in mind that cooperative arrangements are anything but simple to develop into functional reality. The process is slow and involves a great deal of plain hard negotiation and work. We feel that in this particular enterprise both the time and effort are worth it. We are also firmly convinced that our ultimate success in establishing viable operational activities which will stand the test of time will have to involve full community support and involvement. I am not suggesting that the establishment of regional medical operational programs through the vehicle of health planning groups is the only way to reach the local community, but perhaps it is the most suitable way to begin.

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PROBLEMS IN DEVELOPING THE ROLE OF MEDICAL SCHOOLS IN A REGIONAL MEDICAL PROGRAM

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Regional medical programs project a central role for medical schools in the cooperative arrangements which are to be developed and which hopefully are to improve the care of patients with heart disease, cancer, stroke and related diseases.

At first glance, the medical school appears ideally suited to fill this role. The patient in the university hospital setting undoubtedly receives the optimum mix of the tried and the true with the innovative and the new in diagnosis, treatment and rehabilitation. Unquestionably, the most favorable environment for health care derives from the dynamic interrelation of research, teaching and service, as best exemplified by the medical school-university hospital blend.

Proximity leads to intimacy and the fertilization of the teacher by the

investigator produces the vigorous offspring of fine patient care.

On closer inspection, we can see that the medical school falls far short of being able to play this central role effectively. Institutions which have focussed on the training of medical students are asked to focus on the patient; faculties which have been devoted to the education of medical students, interns, residents and fellows are asked to instruct practitioners; high walls which were erected to protect the standards of ivory towers are to be demolished without assurance that the standards will not be lowered and the ivory towers sullied; in short the racing car is to be harnessed to the plow.

Problems arise at all levels; medical school, practitioner and regional medical program itself.

Medical schools are being subjected to innumerable pressures. Expansion of the student body is demanded although the present supply of faculty members is inadequate, with hundreds of faculty positions unfilled throughout the Nation. When RMP proposes that these overburdened teachers take on additional large programs of continuing education, vigorous resistance, even resentment, is generated.

Financial deficits are a chronic irritation, causing persistent headaches and peptic ulcers in deans, contributing to the well-known short "half-life" of assistant and associate deans. Additional sources of income tied to new programs have the uncomfort-

able tendency to increase deficits rather than to eradicate them. Few schools can find additional space to renovate for housing new programs and RMP does not offer money to build new facilities. In the short term it might appear that RMP would bring additional problems to the medical schools. They might reasonably ask "who needs more problems?"

Of greater importance is the demand by RMP that the medical school become involved in community affairs. So many others are also making this demand that it cannot be ignored. Yet, in this realm the medical school resembles the matron whose children insist on her yielding to high fashion and putting on her first miniskirt. She knows her shape is wrong, she feels uncomfortable and unhappy in it but she must conform; eventually she will be less self-conscious; she might even be motivated to change her shape and become attractive in the style.

The faculty of the medical school cannot be greatly blamed for resisting change. They have trained themselves for one role, a role they enjoy, and they are asked to assume another, less desirable role. They are the "upper level of the upper crust" of the profession and are now to mingle with the "lower level of the lower crust." In staff conferences the poorly trained practitioner has always been referred to as the LMD, a derogatory term in long-standing use at medical schools. He has been described in a variety of more subtle phrases and the most ani-

mated discussions refer to the supposition that he practices medicine more for money than for the welfare of his patients. This ignorance about the practitioner who truly practices for the welfare of his patients, stems from lack of communication but it also produces a formidable barrier to a viable regional medical program. Fear that standards will be lowered by overextension of faculty, finance and facilities, by moving into the unchartered waters of community medicine and by welcoming the lowest levels of practitioners restricts the effective participation of the medical school.

The medical practitioner who has been cutoff from the mainstream of medicine relates poorly to the idea of a central role for the medical school in RMP. Almost uniformly, practitioners in an urban setting see RMP as a great potential source for professional improvement and advancement. The more assistance the practitioner needs the greater is his distrust and even dislike of the medical school-university hospital. He is well aware that he has been patronized, often unconsciously, by the great one of medicine, that he is the LMD rather than the patient's personal physician. Over many years, with pride in the knowledge and judgment gleaned from handling thousands of patients, he has sent numerous sick patients to the emergency room, with his request for admission often contemptuously dismissed by the most inexperienced intern on duty. How

often has his patient been admitted on ward service and discharged to clinic for followup without any attempt to ascertain either his doctor's feelings in the matter or his own desires and certainly without ever acknowledging his doctor's existence by notifying him either of the patient's admission or discharge. Although the conferences conducted at the medical schools are open to practitioners, and heavily attended by those already attached to good hospitals, the unaffiliated practitioner feels cut off and he knows that the conference level is so much beyond his understanding as to make his attendance of little value.

The general practitioner feels unwanted by the medical school-university hospital because he is unwanted. He cannot obtain staff appointment there under any practical circumstances. Programs of continuing education are rarely offered for him there and even more rare are the programs which are tailored to his needs and adapted to his practice. Lectures are scheduled for him at the convenience of the faculty and not at the convenience allowed by his office hours, which, after all, are conducted for the convenience of his patients. Rarest of all are the programs which are developed with his assistance and advance and with continual feedback during and after the fact. Even the poverty programs recognize that success is predicated upon participation by the poor in planning and operation. No less can be asked of

those who will assist the poor among medical practitioners.

At the RMP level another order of problems appears. The geographical location of medical schools only occasionally lends itself to the natural development of hospital affiliations and of cooperative arrangements throughout a region. In the New York Metropolitan Region, Downstate Medical School relates well to the Borough of Brooklyn and Albert Einstein Medical School to the Borough of the Bronx. The other five medical schools are located in Manhattan, with Mount Sinai and New York Medical College less than one-quarter mile apart. In contrast the boroughs of Queens and Richmond, and the counties of Westchester, Orange, Putnam, Rockland, Nassau and Suffolk, with a combined population of nearly 6 million persons, have neither a medical school nor significant medical school ties. No more than a handful of the 225 hospitals in the region have significant affiliations with the schools. Few hospitals have come to expect any assistance from the schools in program development or improvement of standards. Indeed, many of the large voluntary hospitals, affiliated or not, are in vigorous competition with them for staff, research money and new facilities.

Not to be forgotten are the problems which arise from the rapid establishment of a totally new organization. Failure to delineate the responsibilities of each part of the

organization and to maintain separate but coordinated groups leads to uncertainty as to function and decrease in efficiency. The deans of the medical schools may serve as trustees of the nonprofit corporation which receives the grants and as members of the advisory council. When serving on the trustee group they hold overall responsibility for the RMP; when serving on the advisory council they provide advice to the trustees—in effect they are advising themselves; to the extent that they dominate the advisory group, to that extent they destroy its independence of function. Medical school staff are frequently appointed to the administrative section of an RMP. Ability to concentrate on development of an RMP on a regional basis may diminish when the same individual is asked by a busy dean to serve on the administrative staff, on the advisory council and even on the trustee group itself.

Since Public Law 89-239 requires us to build medical schools into our cooperative arrangements, at this early stage we should be acutely aware of the many problems they already face. We should make it clear at all times that the RMP will not add new problems but rather will attempt to provide solutions to problems already in existence. If a demonstration coronary care unit, hemodialysis-renal transplant unit, stroke unit or other demonstration, diagnostic, treatment or rehabilitation unit is needed in a region, RMP could fund the unit at the medical

chool. Such an approach would benefit the school and the region at the same time. Continuing education programs for unaffiliated physicians will require teaching manpower in excess of medical school supply. Combinations of automated teaching devices, medical school guidance and teaching faculty from strong voluntary hospitals may provide better teaching programs and much less resistance to cooperation than programs pushed entirely on an unwilling, overworked school faculty. Indeed, in many instances the hostility of practitioners to the medical school may be an important additional reason for building basic continuing education programs largely through the voluntary teaching hospital system.

Computerized hospital networks in an urban setting may be centered in the more substantial computer capacity of the medical school with more efficient and economical operation for all involved. Financial support of RMP programs must be made adequate to avoid placing additional strains on the medical school budget. Eventually, when the schools find their role in the community more comfortable, they will be more effective in the developing of cooperative arrangements.

Many regional medical programs appear to be functioning well despite multiple roles for the same personnel in positions of trustee, advisor and administrator. Eventually, maximum efficiency will dictate separation of roles to a substantial degree.

In summary, medical schools have developed in admirable fashion to meet the objective of providing an excellent education to medical students. The meshing of research and education has had a valuable spin off in providing excellent training for interns, residents and fellows and high quality patient care. Prolonged concentration on these objectives has not equipped the schools well for effective partnership with weak hospitals and unaffiliated physicians. RMP must emphasize that it provides solutions, not problems; must use the strengths of the schools; must avoid programs which lower standards; must not increase financial drains; and must assist the schools in preparing for their rapidly enlarging role in the community. Finally, the separation of functions in control, administration and advisory capacities must be formalized.

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THE ROLE OF A SCHOOL OF PUBLIC HEALTH IN A DEVELOPING REGIONAL MEDICAL PROGRAM

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This brief report on the role of a school of public health in a developing regional medical program will deal with a description of the types of activities in the Connecticut Regional Medical Program in which the Yale School of Public Health has played a part. A little more than 2 years have elapsed since October 1965 when Public Law 89-239 became law. A month later the Governor of the State of Connecticut appointed a committee to recommend a scheme for implementation in Connecticut of the authorization for development of regional medical programs to combat heart disease, cancer, stroke, and related diseases. The committee recommended that the two medical schools in Connecticut take responsibility for

the development of the regional medical program.

The role of the Yale School of Public Health falls into two broad classes of activity.

1. Organization and planning, including consultative and advisory activities and recruitment, and

2. Research, including identification of information needed, gathering and analysis of data, and the design of research endeavors calculated to facilitate the planning and evaluation of the Connecticut Regional Medical Program.

Two members of the Yale School of Public Health served on the original Governor's committee to recommend an organization for implementation of the program. These individuals also then served on a small committee that drew up the application for a planning grant, and on the fifteen-member planning committee that was created with the award of the planning grant. Another member of the school of public health was added when this committee was expanded slightly with the creation of task forces.

In order to facilitate planning, the Connecticut Regional Medical Program created nine task forces to study the specific components of the Connecticut health care system against the back ground of health needs, to identify deficiencies, to chart action programs, and to work for their implementation. These were concerned with the supply and distribution of health personnel, their recruitment

and continuing education, university-hospital relationships, hospital special services, extended care facilities, a medical library system, the financing of health care, and research and evaluation.

Faculty of the school of public health have served on the task forces devoted to extended care facilities, hospital special services, financing of health care, and research and evaluation. The largest number have been participating in the activities of the task force on research and evaluation, which counts among its membership two faculty members from medical care, one from hospital administration, one from public health administration, and one from biometry. The remainder of the task force includes a Yale sociologist, the head of the department of community medicine and a demographer from the university of Connecticut, and representatives of the State departments of health, mental health, and welfare. The role of this task force is to develop base line studies necessary to the functioning of the Connecticut Regional Medical Program, provide technical consultation to the other task forces, assemble and correlate data obtained by other task forces, and devise a system for the continuous evaluation of developments in the regional program.

Additionally the regional medical program has repeatedly used the expertise available in the school in medical care, community health, hospital administration, vital statistics, statis-

tical method, and epidemiology on an informal consultative basis.

Of equal importance perhaps have been the repeated spontaneous discussions between program staff and school personnel on the way in which the program was evolving. Program staff have used personnel of the school as sounding boards to help the staff clarify and sharpen their own thinking about the development of the program.

Graduate students in the school have contributed directly and indirectly to the development of the program. Direct contributions have resulted from the employment by the program of students during free periods. Indirect contributions, of greater volume and significance, have been the result of some of the research performed by students in fulfillment of the requirements for the master of public health degree.

The school has been helpful in recruiting staff for the regional medical program by offering suitably qualified prospective candidates appointments as research associates in conjunction with their staff appointments in the program. The director of the program also serves as a visiting professor in the school of public health.

Research by faculty and graduate students of the school of public health has contributed to the development of Connecticut's Regional Medical Program in a number of ways.

First should be mentioned research, completed in 1966 by the hospital administration section, that supported

the validity of the choice of Connecticut as a functioning region for the delivery of medical care. It also provided data for the delineation of health service areas within the region that could be used for planning and program purposes. Students in hospital administration under faculty supervision studied all 1964-65 admissions to the general hospitals of the state and came to the conclusion that there was minimal leakage of patients to hospitals in the neighboring states of New York, Massachusetts, and Rhode Island. On the basis of these data they also plotted hospital service areas within the State. These hospital service areas coincided almost perfectly with the areas into which the State had been divided by the Connecticut Development Commission on the basis of economic factors.

When the Connecticut Regional Medical Program came into existence, the division of the region into planning and program areas was one of its first needs. A committee was appointed, with representation from the Yale School of Public Health, to recommend a suitable division of the State into health service areas. After careful study, the original Yale hospital service areas were adopted with minor modifications. Currently, every health and welfare agency in the State has divided the State somewhat differently for administrative and program purposes. Thus, the State health department has three such divisions, one for its mental retardation programs, another for the administration

of the hospital survey and construction program, and the third for its State health department decentralization program. The State department of mental health, the State welfare department, the major voluntary health agencies, the Connecticut Hospital Planning Commission, and, has already been noted, the Connecticut Development Commission, each has a different divisional pattern of the State for planning and program purposes. While inherent needs of the respective programs will undoubtedly preclude the adoption of a single pattern of service areas for all purposes, it seemed to many of us that much of the diversity is not dictated by necessity. Therefore, a regional medical program subcommittee, with school of public health representation has been actively engaged for several months now in meeting with all interested parties to try to reduce both the number of health service area patterns in use and the differences among them.

Another school of public health study that is proving of very great value to the regional medical program is concerned with an inventory of physicians in Connecticut and their distribution. Using as a base the information available from the American Medical Association tapes of July 1, 1966, and augmenting this with data we gathered on physicians' hospital affiliations and number of patients admitted by each physician to each of these hospitals, we have been able to provide a picture of the

distribution of physicians and their characteristics that is being used for the planning of the operational phase of the regional medical program and the research that will be necessary for its continuing monitoring and evaluation.

A preliminary analysis by the school of internship and residency training programs in Connecticut hospitals provides data of another kind that will be very important to the regional medical program in its assessment of the several hospitals as educational institutions and its recommendations for their future educational roles.

An inventory of health resources and a study of laboratory services in Connecticut were both started about 6 months ago.

Finally, we come to projected research that has grown out of a close working relationship between the regional medical program and the school of public health. Here, as a rule, the program has posed the problems and the school has come up with suggested research designs aimed at their solution. There are three such in various stages of development that I wish to mention briefly.

Two determinants of the nature of a regional medical program are the health status of the population and the characteristics of medical practice. Very little hard data are available on the health status of the population of Connecticut beyond the obvious conclusions and inferences that can be drawn from mortality. To remedy this situation at least in part

several members of the faculty of the school of public health, in their capacity as members of a regional medical program task force on research, have proposed a study of the recognized incidence, treatment, and course of coronary heart disease, stroke and several of the most frequent sites of cancer and have expressed a willingness to participate in such a study; if financing and recruitment of the necessary research personnel can be arranged. Because of the magnitude, complexity, costliness, and inherent difficulties of conducting large-scale longitudinal community studies it was decided to study only three of the nine health service areas into which we have divided the State: The most rural health service area, an intermediate area with a core city of about 100,000, and the health service area in which the State's prime medical center is located. Essentially, the purpose would be to follow patients through their physicians, themselves, their families, and the institutions in which they were cared for to determine their diagnosis, the health services and facilities that they employed, and the impact of their illness on themselves and their families. This would be a long-term study to discover trends and urban-rural differences. It was also thought desirable to explore the feasibility of developing both a State coronary disease and a State stroke register similar to the State cancer register that has been in operation for 30 years.

The proposal to study the charac-

teristics of medical practice would also be concentrated in the three health service areas where the patients were being studied. It is our intention to study type of practice, kinds of assisting personnel used, office facilities for diagnosis (including laboratory diagnosis) and treatment, medical record system, the physician's continued educational opportunities and practices, and the referral process to and by the physician.

A third proposal is directed at developing a computer system geared to the needs of Connecticut hospitals for the collection, storage, retrieval, and communication of administrative and patient care data. It is proposed, by starting with the 35 general hospitals in the State and adding the special hospitals and extended care facilities later, to establish a data bank of all past admissions. The proposal is similar to the professional activity study system but hopefully will provide information in a more usable form. One of its uses will be as a screening process for utilization review. It will also offer data for trend studies and state-wide comparisons among hospitals, on hospital based medical services for the State as a whole, for health service areas, and for individual hospitals that should prove of inestimable value in identifying problem areas for the regional medical program with respect to medical care patterns and their implications for continuing medical education and research.

Finally, the close working relationship between the Connecticut Re-

gional Medical Program and the Yale School of Public Health presents the opportunity for a cooperative educational effort. There is great need for training personnel to fill the ever-increasing demands for planners and administrators of regional medical and other health programs. The combination of the academic resources of the school with the unique field training opportunities of the regional program should produce a mixture of classroom and laboratory experience ideal for educational purposes. We propose to make full use of this opportunity.

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WATTS-WILLOWBROOK REGIONAL MEDICAL PROGRAM

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On Wednesday, August 11, 1965, rioting commenced in Watts. The violence continued for 6 days, until August 17, 1965. Thirty-four persons were killed, 1,032 injured and 3,952 arrests were made. Property damage was estimated at \$40 million. To quell the riot, 934 police officers and 13,900 National Guardsmen were called in, and martial law was imposed upon the community for 6 days.¹

Shortly following the violence, the Governor's Commission on the Los Angeles Riots, under John A. McCone as chairman, commenced its investigations. Among the many facts of the McCone Commission Report, those related primarily to health are of particular interest to regional medical program planners.

Of the two major ghettos within Los Angeles, the South ghetto area containing the Watts-Willowbrook community is decidedly the larger,

having a 1960 population of 251,221. The percent of Negroes varies from 53.8 to 94.8 within the various neighborhoods of the community, and the population density of 10,000 per square mile is very high for Los Angeles, the result of immigration.

The influx of Negroes, mostly from the Southern States has been great in many Northern cities since 1940. In Los Angeles the new settlers have increased eight times in this span of years, compared with 2½ times in New York City and three times in Detroit. Most of these (new) people have settled in the (South ghetto) district and they bring with them the educational, social, and health handicaps of generations of segregated living in the South.²

The relatively high percent of women and children, the high unemployment rate, the low average educational attainments, the relatively high infant and maternal mortality, the low average income, and the relatively low life expectancy are characteristics of the Watts-Willowbrook area, as they are of other Negro ghettos elsewhere in the United States.

Because of poverty, unemployment and limited private facilities, most residents of the Watts-Willowbrook area have been forced to seek medical care through the out-patient department of Los Angeles County General Hospital located to the north at an average distance of 9 miles from the area. By bus this distance requires a minimum of 2 hours round trip and costs 68 cents each way. Harbor General Hospital, also a county institution, is located closer, to the south

(average distance 7 miles), but no form of public transportation has yet been developed connecting it to Watts. This transportation difficulty . . .

. . . is compounded when patients must accept long delays in a crowded clinic waiting room. It is further compounded by the problems of lost time from work for an employed man or woman who is asked to come to the clinic in daytime hours, or by the expense of babysitters for other children at home while the mother is away at the hospital.²

It was ascertained that, in the two health districts containing the ghetto areas, the physician-population ratios were 38:100,000 and 45:100,000 respectively as compared with a Los Angeles County overall ratio of 127:100,000. Furthermore, of the 106 physicians practicing within the area, only 17 were specialists in any sense, and only 5 were certified by their respective specialty boards. The situation was similar as regards dentists. The explanation for this lies in the severe limitations the poverty of the area places upon the financial rewards of health professionals practicing within it.

Throughout the Nation the community general hospital has become the keystone for the care of the seriously ill and for the diagnosis of the ambulatory patient. Such institutions are poorly developed in the Watts-Willowbrook area, however. The hospitals of this community and its environs, eight in all, are proprietary in nature ranging from 22 to 136 beds with a 454-bed total. Only two of

these hospitals have met the minimum standards required for approval by the Hospital Accreditation Commission.

Public Health services of the area demonstrate marked deficits in personnel and space. Main emphasis is placed on maternal and child health services, venereal disease and tuberculosis control, family planning, and environmental sanitation. The services can be "characterized by anonymity, endless waiting, overcrowding, and lack of continuity."²

Typical, perhaps, are the venereal disease clinics; in one 6-month period 2,375 patients were seen but 1,304 other appointments were broken or canceled—with no means or personnel for followup.

Welfare medical service agencies are present in great numbers in the Watts-Willowbrook general area. Table 1 lists them. Although only 5 percent of the overall population of Los Angeles County is entitled to such publicly financed medical care, this figure rises to 23.7 percent for Watts-Willowbrook.

Other governmental and voluntary health programs operative in the Watts area are listed in table 2. In general, these function in a somewhat restricted way. This can be due to lack of eligibility of the majority of the ghetto area population (e.g., only 128 men of a population of 144,000 were serving in the armed forces in 1960), or to a failure of the ghetto population to enter the general medical reference patterns (e.g., all actions of

Table 1

PUBLIC WELFARE SERVICE AGENCIES IN LOS ANGELES COUNTY

- I. Hospital care (Federal, State and county financing)
 - A. Los Angeles County Department of Hospitals
- II. Out patient care
 - A. Categorical recipients (Federal and State financing)
 - (1) California Public Assistance Medical Care Program (PAMC)
 - (a) Old Age Security (OAS)
 - (b) Aid to Families with Dependent Children (AFDC)
 - (c) Aid to the Blind (AB)
 - (d) Aid to the Totally and Permanently Disabled (ATD)
 - (e) Medical Assistance for the Aged (MAA-Kerr Mills)
 - (f) Crippled Childrens' Services (CCS)
 - (2) Los Angeles Department of Charities, Bureau of Public Assistance (BPA) administers all welfare to categorical recipients.
 - B. Other poor people (county financing only)
 - (1) Los Angeles County Department of Charities, Bureau of Hospitals, Outpatient Medical Relief Program (OMR)
- III. Mental Health Services
 - A. Hospital care (State financing)
 - (1) California State Department of Mental Hygiene
 - B. Ambulatory Psychiatric Services
 - (1) School Guidance Clinic (county financing)
 - (2) Westminster Health Unit (private and NIMH support)
 - (3) South Central Mental Health Service (State financing) administered by Los Angeles County Department of Mental Health

Table 2

OTHER GOVERNMENT AND VOLUNTARY HEALTH AGENCIES OPERATIVE IN WATTS-WILLOWBROOK

- I. Federal
 - A. Veterans Administration Clinic
 - B. Aid to dependent military personnel
- II. Federal and State
 - A. California State Department of Rehabilitation
- III. Private
 - A. Visiting Nurse Association
 - B. Tuberculosis and Health Association
 - C. Los Angeles County Heart Association
 - D. American Cancer Society (Los Angeles chapter)
 - E. American Red Cross
 - F. Family Service Center of Los Angeles

the Visiting Nurses Association must be ordered by a family physician). The voluntary categorical agencies' programs in education tend to be discouraged by the nature of the population, and their subsidies for patient care to be limited by overlap and conflict in eligibility requirements.

It is obvious that this plethora of agencies operating in an urban ghetto area such as Watts-Willowbrook is a major aspect of the problem to be considered by a planner of regional medical programs for such an area. Much of the health picture so far described in the McCone Commission Report remains today, but some progress is being made.

The most urgent medical need brought out in the McCone Commission studies was that of assuring easier access to outpatient facilities. This has been met to some degree by improving the bus transportation services between the ghetto and Los Angeles County General Hospital, using a Federal subsidy. Of greater importance has been the establishment of the South Central Multipurpose Health Center, an outpatient facility operated by the University of Southern California School of Medicine under a grant from the Federal Office of Economic Opportunity. This unit occupies a new structure of 5,300 square feet and has a staff of 24 physicians, 12 dentists, 165 supportive personnel, 50 nurses, and six social workers. An average of 140 patients are seen there daily. Also of great importance has

been the establishment of the Central City Community Mental Health Clinic founded by NIMH.

Major interest in the long-range improvement of medical services within Watts-Willowbrook and adjacent areas has been the planning for and funding of the Los Angeles County Southeast General Hospital, a 485-bed institution to be opened in July, 1970. The construction is supported by Federal funds and a county bond issue; staffing and maintenance will be by the Department of Hospitals of Los Angeles County.

Considerable concern has been expressed by three medical groups regarding the staffing of Southeast General Hospital. The interested groups are UCLA School of Medicine, USC School of Medicine, the Los Angeles County Bureau of Hospitals, and the Charles R. Drew Medical Society. The latter is the Los Angeles arm of the National Medical Association, a nationwide organization of Negro physicians. Charles R. Drew was the Negro surgeon whose research in blood plasma and whose planning of the World War II plasma program which supplied the Allies in Europe, as well as whose other contributions to American medicine, earned for him the Spingarn Medal for the "highest and noblest achievement by an American Negro" in 1943. Dr. Drew met an untimely death in an automobile accident at the age of 45, at the height of his career while Professor and Chairman of the Department of Sur-

gery at Howard University College of Medicine.

After considerable study and discussion, the Charles R. Drew Medical Society and the two medical schools resolved to establish the Southeast General Hospital as a medical teaching center related to both of the existing schools. It was decided that the staff of the new institution should be academically oriented as a school faculty as well as functionally oriented as the staff of a medical center. This was considered necessary in order to integrate the professional personnel of the new hospital with the existing departments of the medical schools; and in order to establish the new institution as a clear and ever present source of community pride for the people of Watts-Willowbrook. In this way the concept of the Charles R. Drew Post-Graduate Medical School was born.

Numerous dividends accruing not only to the people of Watts but to the larger community of Los Angeles County and to Southern California as a whole are postulated as forthcoming with the establishment of the Charles R. Drew Post-Graduate Medical School, based upon Los Angeles County Southeast General Hospital in the Watts-Willowbrook area. Some of these are listed below.

1. Patients from Watts-Willowbrook and adjacent depressed areas will have near at hand a medical center of high excellence available to them for diagnosis and treatment of

both acute and, to some extent, chronic diseases.

2. Physicians, especially those of greater than average attainments, will be stimulated to enter into practice within the ghetto community. Physicians already present there will be motivated to increase and refresh their knowledge and capabilities.

3. In cooperation with three junior colleges and one State college within commuting distances of Watts, allied health personnel of all types and descriptions can be trained not only for the benefit of the immediate community but also providing needed manpower for the county as a whole.

4. As a corollary to the above, the motivation of the young people of the ghetto may be modified toward self-fulfillment in health sciences occupations, advantageous to individual and community alike; and usually more readily attainable than the sports or theatrical careers commonly sought after at the present time.

5. The faculty of the Charles R. Drew Post-Graduate Medical School will be recruited from the ranks of academic specialists possessing the highest standards of excellence and community motivation. The opportunities for joint appointments in the departments of the existing schools of medicine of Los Angeles County, with the coexisting opportunities for development of grant funds for basic and clinical research and for continuing education, will be a source of attraction for the type of academic personnel envisioned for the school.

6. The Schools of Medicine at UCLA and at the University of Southern California will benefit by having an additional institution of excellence near at hand for the specialty training of graduate medical students, and for clinical clerkships for undergraduates.

7. The Southern California medical community as a whole will be enriched by the added presence of the Charles R. Drew Post-Graduate Medical School because both its professional and nonprofessional health care personnel graduates will be added regularly to enhance the health manpower pool of this entire heavily populated region of the State. Furthermore, a school of this particular nature is likely to attract many of the medical "greats" of the world regularly as guest lecturers for the benefit of the total profession in Southern California.

The State of California has been constituted as a region for regional medical programs—by far the largest region in population in the Nation. This region has been subdivided into eight areas for purposes of RMP planning and operations. Each of these areas is under the direction of a medical school. USC School of Medicine was assigned area V of the region consisting of the major portion of Los Angeles County. The geographic assignment of UCLA School of Medicine (area IV of the region) included the southwest portion of Los Angeles County and eight other counties to the north and west. Each of

these areas contains about 4.25 million people.

The staffs and voluntary committees of both UCLA-RMP and USC-RMP have recognized that the great size of Los Angeles, the magnitude of its population, plus the large number of its socio-economic groups, pose sufficient challenges to warrant complete cooperation and coordination between the two RMP areas assigned to it. This cooperation was evident when the final boundary line between the areas was left flexible. For purposes of data collection, the two areas currently are separated along county health district boundaries, all communities adjoining this line, however, have been assured that the boundary is subject to reasonable changes according to the wishes expressed by official RMP volunteer groups. This line as now constituted runs between Watts and Willowbrook, dividing that ghetto community so that about 70 percent of it lies within the USC-RMP Area and 30 percent within the UCLA-RMP Area.

Approaching the health service problems of Watts, the RMP planners of both areas encountered in detail the background, and the pertinent factors and situations already described. A highly motivated, active group of individuals had developed the plan for the Charles R. Drew Post-Graduate Medical School to a considerable degree. This group contained effective representation from both schools of medicine, from the Charles R. Drew Medical Society,

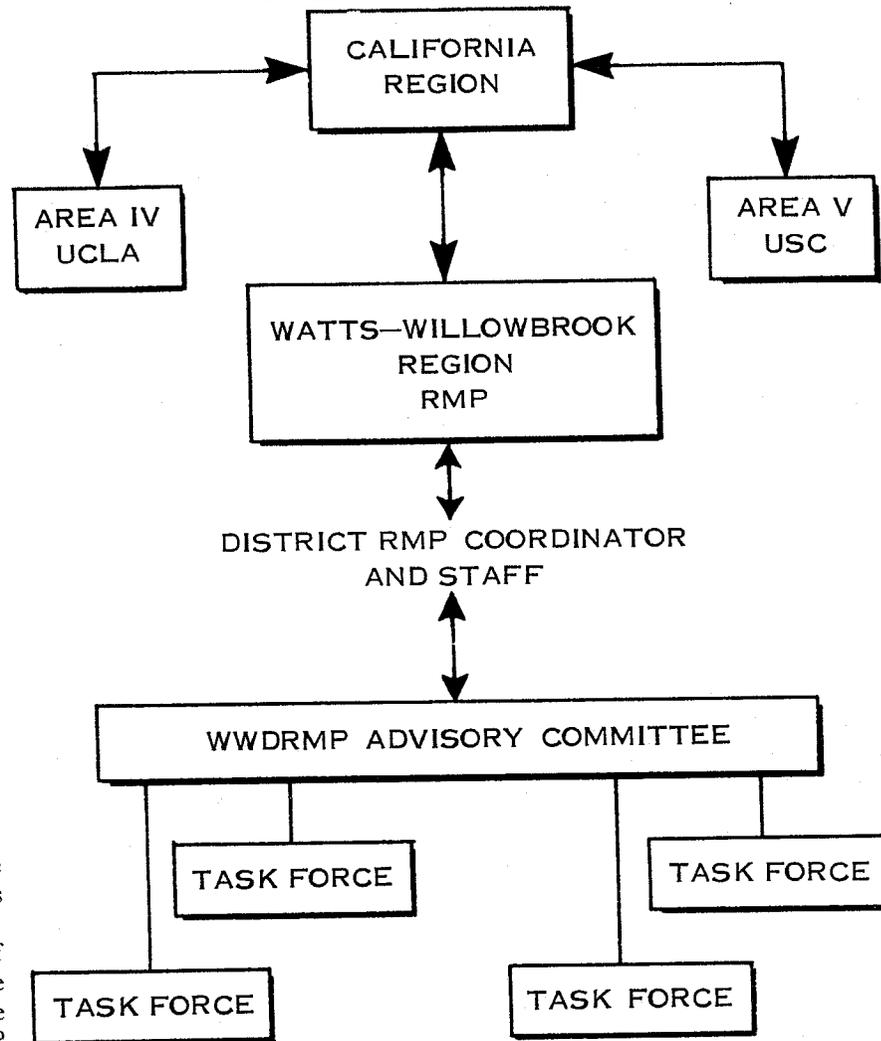
and from the Los Angeles County Department of Hospitals. It remained for the RMP planners to integrate the plan for the new school into a broader plan that would elevate all health services within the Watts-Willowbrook community, particularly those having to do with heart disease, cancer, stroke, and related diseases.

Agreement was reached to create a new RMP planning district for the ghetto community, directly responsible to the California regional administration and financed through it. It would be aided in planning and operations by the staffs of both UCLA-RMP and USC-RMP, from whose assigned Areas the new Watts-Willowbrook District RMP would be extracted (fig. 1).

There was further agreement in constituting a large RMP advisory committee for the new district in order to correlate all of the many concerned public and private welfare service agencies (tables 1 and 2) by representation in one overall organization. It was recognized that this would be a large and potentially unwieldy body, but, by breaking it down into task forces, and by providing it with an active and knowledgeable staff, it was expected that such a committee would function well, and perhaps gradually would bring some order into the health services chaos now existing in Watts.

However, where might such a staff be obtained? And, where could the Charles R. Drew Post-Graduate Medical School fit into this picture?

FIGURE 1
SCHEMATIC DIAGRAM
OF POSITION OF WATTS-WILLOWBROOK RMP DISTRICT
WITHIN THE CALIFORNIA REGION



It seemed to the RMP planners concerned that, to staff a large metropolitan hospital scheduled for completion in mid-1970, recruitment should commence without delay. Furthermore, active recruitment with the goal of obtaining personnel of high academic excellence and high community motivation, would soon produce a group of individuals capable of the most excellent staff work for the benefit of the Watts-Willowbrook district regional medical programs. They would function within the RMP during the interim period between their recruitment and the time of full activity within the new hospital and school. The clinical interests of these highly specialized individuals could be maintained during this interval by their joint appointments to the faculties of the two existing medical schools.

Because most of the key faculty members, both Negro and Caucasian, are likely to be recruited from out of the county, their work with the Watts-Willowbrook RMP district advisory committee promises to be a valuable educational experience for them, as well as of lasting advantage to the community itself.

The general outline of the plan for regional medical programs in the Watts-Willowbrook ghetto area of Los Angeles was completed by the planners reaching agreement on the principle that the faculty of the new school would be recruited originally as staff for the RMP district, financed through regional medical programs.

After a 5-year period, funding of this faculty would be entirely from Los Angeles County and patient income sources, the RMP support reaching a maximum in the third year (fig. 2). This plan has been worked out in some detail and has been submitted jointly by UCLA-RMP and USC-RMP through the California region to the NIH division of regional medical programs as a grant proposal.

This plan for the development of regional medical programs in Watts is unusually complex, but necessarily so to fill the intricate, multiple needs of this community.

As worded by Sherman M. Mellinkoff, M.D., Dean of the UCLA School of Medicine, in a letter³ written in support of the proposed Watts-Willowbrook district RMP:

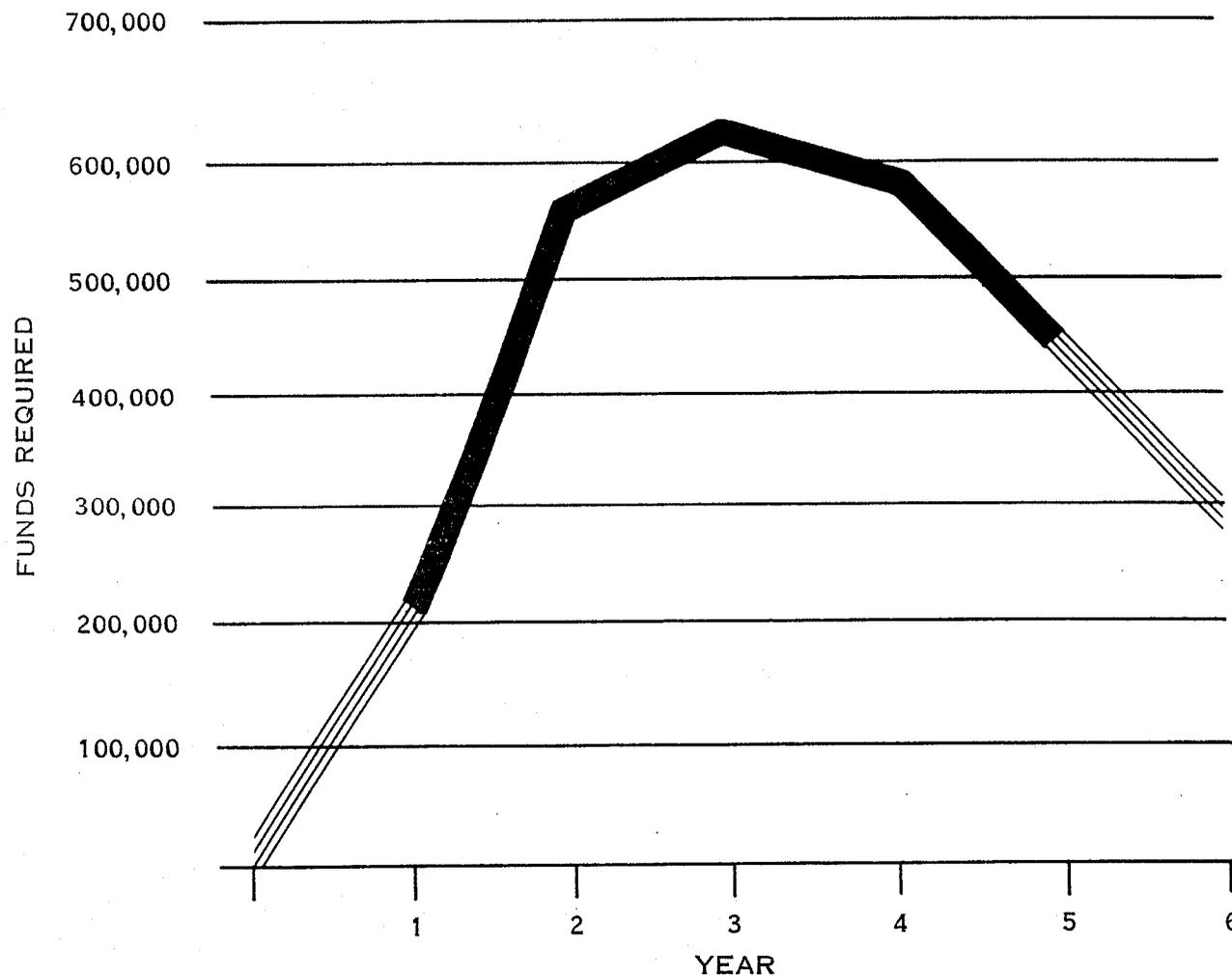
The architects of the cancer, stroke, and heart disease legislation could scarcely have conceived of a locality which asks for the help this program can give than does Watts, cut off as it is from the mainstream of modern medicine in an affluent society. The backwardness of its existing delivery of medical care can be overcome only by forwardness of imagination, ingenuity and effort.

In the last part of his letter, Dr. Mellinkoff writes:

A national effort must be made to raise health standards among Negroes to the levels enjoyed by whites. The task is plain. The means are at hand. The time to begin is now'. I quote these words from a recent article in *Newsweek* because of their pertinence to this proposal for a regional medical program in Watts. Since my advocacy is addressed to sources sympathetic to the issues raised, this (letter) may be too lengthy or polemical. I would

FIGURE 2

**PROPOSED FUNDING FOR WATTS-WILLOWBROOK
REGIONAL MEDICAL PROGRAMS DISTRICT**



prefer, however, to risk overstatement of the case than injustice to it.

The success of the regional medical programs in a community having as many health problems as Watts-Willowbrook can serve as a positive example and a major precedent for this nationwide endeavor to provide the improved health care for those suffering from heart disease, cancer, stroke or a related disease.

References

- (1) Governor's Commission on the Los Angeles Riots, "Violence in the City—An End or a Beginning?", Dec. 2, 1965.
- (2) Roemer, Milton I., "Health Resources and Services in the Watts Area of Los Angeles", *California Health*. 28:123-143, February-March 1966.
- (3) Mellinkoff, Sherman M., Letter to Paul D. Ward, Nov. 21, 1967.

20

COUNCIL OF REGIONAL PLANNING DIRECTORS AND ADMINISTRATORS

JOSEPH J. MASON, JR.
Associate Director for Administration
Alabama Regional Medical Program

Recent years have seen the enactment of legislation having major, long-range impact on the health and welfare of our citizenry in such key areas as education and training, the delivery of health care services, the identification and review of manpower resources, and the broad application of social sciences to current and pressing problems within our society. Without exception, these programs require comprehensive and continuous planning efforts. Since each program is autonomous, directed toward a specific problem area and independently funded, the need to establish and maintain close liaison between programs at the State or regional level becomes evident if program goals are to be realistically defined and implemented. Further, effective liaison assists in the design of mutually supporting activities, holds functional overlap and dupli-

cation of effort to a minimum, and eliminates gap areas. If successful, therefore, a regular exchange between programs should increase overall effectiveness while decreasing program costs in relation to anticipated benefits.

An initial approach to interprogram coordination was attempted through the structure of interlocking committees. To continue with the earlier example, the heart, stroke, and cancer subcommittee of the Statewide Planning Project for Vocational Rehabilitation is chaired by an associate director of the Alabama Regional Medical Program. Although of some assistance, this approach has limited effect for the obvious reason that all such committees could not have representation from all parallel program elements.

In discussing this problem of coordination and cooperation with key members of the health professions within the region, it was their consensus that an attempt should be made to establish some form of regional or statewide communication network between major health, or closely related, programs. It was further suggested that regional directors and administrators meet periodically to discuss approaches and problems in planning which have general implication beyond the confines of any single program. A proposed instrument for this interchange is the Council of Regional Planning Directors and Administrators.

In a letter dated November 17,

1967, a proposal to form a council was sent to the following programs within the region: Comprehensive Health Planning, Comprehensive Neighborhood Health Center Program, Model City Program, Statewide Planning for Vocational Rehabilitation, Alabama Regional Medical Program, Veterans' Administration, State Board of Health, Appalachian Regional Program, Hill-Burton, Medical Association of the State of Alabama, Alabama State Hospital Association, Federal Programs Coordinating Committee, Tuskegee Institute, University of Alabama in Birmingham.

Early in the organization and development of the Alabama Regional Medical Program, it became apparent that a number of other groups, organizations, and programs within the region were vitally interested and active in many of the health care planning areas where, to be effective, the regional medical program must also participate. To cite one example, the Vocational Rehabilitation Act Amendment of 1965 (Public Law 89-333) made grants available to undertake statewide planning for vocational rehabilitation service. In February 1966, the Governor designated the Vocational Rehabilitation Agency of the State Department of Education as the sole State agency to administer this act in Alabama. Since that time, a comprehensive study has been designed and initiated. Specific objectives of this statewide planning project include the following:

To identify by number and category those disabled within the State who are in need of vocational rehabilitation services. Disability categories which will be studied include, among others, heart disease, stroke, and cancer.

To identify the barriers that prevent or delay needed vocational rehabilitation services for the handicapped.

The purpose of the council was outlined as follows:

- To encourage formal and informal discussions of planning progress.
- To identify areas of mutual planning interest.
- To develop working relationships between programs and encourage exchange of data.
- To develop an effective communication network between participating programs.
- To establish media for promulgation of program objectives to the general public.
- To assess the changing political, social, economic climate affecting regional planning.

This letter recognized that there were individuals and formal committees already established within the State for the purpose of coordinating Federal programs. It further pointed out, however, that the proposed council would not interfere with their responsibilities; rather, its functions would be designed to complement existing structures.

Without exception, response to the above letter was favorable. Consequently, on December 21, 1967 the dean, Medical College of Alabama in Birmingham, sent an invitation to the

original group to participate in an exploratory forum on January 12, 1968.

The forum was hosted by the University of Alabama in Birmingham and conducted in facilities of the School of Health Services Administration.

Although hazardous driving warnings were in effect through most of the State on the day of the meeting, 20 individuals attended from offices located throughout the region. Only one program originally contacted could not attend and representatives of this program asked to be included in future activities of the council, should it be formed.

The 2-hour forum was chaired by Dean Hill, Medical College of Alabama. Dean Hill opened the session by reminding the group of the historical role the university had played in the conduct of forums for the purpose of coordination and cooperation between programs having a high degree of public interest. He added his personal views supporting the concept of the council and asked a representative of each program to give a brief resume of their program's mission and objectives.

Highlights from the open discussion that followed included these pertinent observations:

1. In recent years it has become abundantly clear that planning for health and welfare cannot be separated from the sources of information and planning in many other sectors of social and economic life. For example, it was recognized long ago that edu-

cation in general, not only the education of health professionals and the large allied health service groups, is highly relevant to the implementation of health programs. Only an informed public will support and make proper use of an expanded, or improved program, for the delivery of health services. Access, or entry, into the existing system of medical care is recognized as one of the most difficult current problems. Improvement in the immediate future probably depends more on health education of the public than on changes within the medical system itself. Another example is the present crisis in emergency room care. This problem is not likely to be solved until the public thoroughly understands and appreciates the costs and limitations that must be placed on emergency care.

Also, there are many social and economic areas that superficially seem quite remote to the health care field but which on closer study are found to be intimately related. A very large number of examples can be listed: To name a few of the most obvious — transportation (which obviously bears upon access to health resources), economic development in general (bearing upon the availability of jobs, income and living conditions) housing, recreation, air and water pollution, and other factors of environmental health.

2. The number, complexity, and size of existing Federal aid programs is nothing short of overwhelming,

regardless of the terms in which they are expressed.

The most recent catalog of Federal aid lists 459 separate programs. These are administered through a large number of Federal agencies and an even larger number of bureaus, regional offices, State and local sub-agencies. Many billions of dollars are being channeled through a network of government and voluntary groups that almost defies analysis.

3. Full coordination of Federal programs at the Washington level is generally considered both impossible and undesirable. No one wishes to sacrifice the advantages of a democratic and pluralistic structure that, at the Federal level, is responsive to the needs and expressed wishes of the people through the legislative process. It is, therefore, quite generally agreed that coordination should take place at the State and local level. This places a great burden of responsibility on the individuals and groups involved in the planning process at the regional level.

4. As practical issues of the meeting, it was considered important:

(a) For persons and groups involved in Federal program planning within the State of Alabama to know one another.

(b) Despite efforts to identify and invite everyone who would be interested, or involved, concern was expressed that there may have been some omissions. Every attempt should be made to identify any such oversights prior to the next meeting.

(c) To the extent practical, it was suggested that there should be an exchange of basic information concerning various program functions and primary areas of responsibility.

5. Recognition must also be given the important interface between Federal programs and a wide variety of nongovernmental or privately sponsored activities. Participants felt that it was best not to introduce the private sector at this time, since the primary effort should first be directed toward firming up Federal program coordination.

The forum closed with a vote of unanimous support for the council. The project director, Statewide Planning for Vocational Rehabilitation Services, and associate director of the Alabama Regional Medical Program were asked to serve as recorders for the council, and to prepare an agenda for the next meeting scheduled in March. It is anticipated that the council will meet bimonthly on a rotating host basis, and that its membership will be expanded as knowledge of the councils activities is gained throughout the region and as other planning activities are identified. It is further anticipated that the council will prove to be an efficient mechanism for coordination and communication between major health and welfare programs, and that it will, in time, improve the overall effectiveness of participating elements.

As a sequel to the council's formation, it is appropriate to briefly mention the called meeting of the College

of Counsellors and House of Delegates of the Medical Association of the State of Alabama in Montgomery on Sunday, January 14. This informational forum represented the first attempt by a state medical society to bring before its membership a comprehensive presentation of current State-Federal health care programs. Included on the agenda were: Public Law 89-749, Comprehensive Health Planning; Public Law 89-97, Medicare-Medicaid; Public Law 89-4, Appalachian Regional Development Act; Public Law 89-352, Economic Opportunity Act (Poverty Health Care); Public Law 89-239, Regional Medical Programs; Public Law 84-569, Civilian Health and Medical Programs of the Uniformed Services; and Title 38, U.S. Code, Veterans Administration Outpatient Program.

This seminar attracted some of the Nation's outstanding authorities on Federal health activities from national, regional, and State levels as well as representatives from the medical associations of Louisiana, Mississippi, Tennessee, North Carolina, South Carolina, Georgia, and Florida. In addition, the American Medical Association had observers present in order that the meeting could be reported nationwide.

These two recent events—the formation of the Council of Regional Planning Directors and Administrators, and the called meeting of the Medical Society of the State of Alabama—are indicative of the growing interest in State-Federal health and

welfare programs in Alabama, and of a growing awareness of the need to improve coordination and cooperation between program elements. Both developments are considered to be major steps in the right direction.

21

DEVELOPMENT OF THE RELATIONSHIP BETWEEN THE MEDICAL ASSOCIATION OF THE STATE OF ALABAMA AND THE ALABAMA REGIONAL MEDICAL PROGRAM

J. O. FINNEY, M.D., F.A.C.P.
Associate Director
Alabama Regional Medical Program

The Medical Association of the State of Alabama is an unique organization in that it is, by a legislative act, the State board of health. Thus, membership in the association automatically confers membership on the State board of health. Ten elected members of the association serve concurrently as the State board of censors, the State board of medical examiners and the State committee on public health. At each annual session of the association the actions of these 10 men, serving in their capacities as the State committee on public health and the State board of censors, are submitted for approval or disapproval by the counsellors and delegates, the elected representatives of the as-

sociation. Their action as a State board of medical examiners is subject to review by process in the civil courts and not by the association. By authority of the same law a similar arrangement constitutes the county board of health and censors. This State and county participation in health matters demanded of Alabama physicians by the laws of the State and extant since 1875, has perhaps resulted in more awareness of a practicing physician's responsibility in the health field than generally prevails among members of the profession in most other States. By virtue of its quasi-legal status and because of its assumption of a health conscious posture for nearly a century, the Medical Association of the State of Alabama exerts an extraordinarily powerful categorical influence; a frightening adversary when in opposition to, yet an aggressive ally when in support of measures related to, the health of the citizens of this State.

The members of the association have watched with growing pride the approach toward excellence of the Medical College of Alabama. The relationship between the medical college and the association has been mutually cordial and there has existed a reciprocal sense of respect relating to the aims and purposes of each.

At the outset it was realized that the success of the Alabama Regional Medical Program depended upon the development and maintenance of strong endorsement by the Medical Association of the State of Alabama. Once support at the State level had

been gained, it might then be possible to generate enthusiasm at the local level; the county medical society and their physician members, practicing where the chief impact of the program is intended. Without initial support of the State Association the program would have been doomed to utter failure.

It was suggested that the methods utilized in the development of a satisfactory relationship between the Medical Association of the State of Alabama and the Alabama Regional Medical Program might be of some value to those interested in regional medical programs.

In the summer of 1965, on recommendation of the American Medical Association, a committee of the Medical Association of the State of Alabama was appointed under the chairmanship of Dr. Tinsley Harrison to study a report of the President's Commission on Heart, Stroke, and Cancer as it might relate to this State. This special committee was appointed by the then president of the MASA in collaboration with the dean of the Medical College of Alabama. The committee recommended that such programs be centered in the medical college, but should operate with the approval and guidance of the medical association and the State health department.

In accordance with the recommendation of the ad hoc committee, an advisory committee to the Alabama Regional Medical Program for Heart Disease, Cancer, Stroke, and Related

Diseases was appointed early in 1966. The constituents of this committee were selected by the president of the MASA and the dean of the medical college along with representatives of interested volunteer and other professional groups, with the approval of the board of censors of the association.

The original committee was gradually expanded and since the fall of 1966 has afforded a broad base of representation for the profession, allied health agencies, allied health professions, business leaders, consumers and various social groups. The number of practicing physicians on the advisory committee exceeds the number of physicians on the full-time faculty of the medical college.

The board of censors of the MASA has been continuously informed of activities concerning the Alabama Regional Medical Program and their approval sought in any area which might become controversial. A broad statement of policy, developed by a subcommittee of the advisory committee, was presented to the board of censors August 12, 1966 and was approved without a dissenting vote.

The medical societies of our northern tier of counties were approached by the dean of the Vanderbilt University School of Medicine, Nashville, Tenn., concerning their possible inclusion in the Tennessee Mid-South Regional Medical Program. On learning of this, the then president of the Medical Association of the State of Alabama on request by the advisory committee and with the approval of

the State board of censors, wrote to the president of each county society involved requesting a statement of preference for affiliation, explaining that our interest was prompted by the need to define the Alabama region. It was later pointed out that a statement of preference would in no way interfere with the usual patient referral pattern. Each county society involved decided to affiliate with the Alabama Regional Medical Program.

It was obvious that the State board of censors should receive copies of all correspondence from the central office of the Alabama RMP to its affiliate county medical societies and the advisory committee approved such an arrangement. This procedure was adopted as a policy by the central office staff of the Alabama RMP and has been strictly adhered to. In addition, copy of all correspondence from county medical societies is forwarded to the central office of the Medical Association of the State of Alabama in Montgomery, Ala. The simple step of coordinated communication between the central office of the two organizations has resulted in a rather extraordinary cooperation. Not only has the chairman of the State board of censors sent letters to county society presidents supporting our efforts, but the executive director of the Medical Association of the State of Alabama has used the WATS line facility of the association to stimulate action at the county level.

At the annual session of the MASA in April, 1967, the president's message

carried a strong recommendation for the establishment of a committee on socioeconomics, to be charged with the duty of closely following the development of all Federal medical programs with special reference to possible impact on the private practice of medicine. This recommendation was accepted and a committee was appointed by proper authority in May 1967. In addition to its other functions it was anticipated that this committee would provide various Federal medical programs an official body through which matters of mutual concern could be properly directed to the board of trustees and the board of censors of the association. The chairman of the State board of censors and the associate director of the Alabama Regional Medical Program attended the organizational meeting of the committee. The need for creation of comprehensive health advisory committees on a county, or multicounty basis over the State, with the county medical societies assuming leadership, was pointed out. This concept was unanimously approved by the committee. The board of trustees acted favorably on the recommendations of the committee on socioeconomics at its meeting on August 6, 1967. The project was given strong endorsement by the board of censors, which authorized the president of the association to call a meeting of the delegates and counselors in each of the four geographic divisions of the association, to aid in the development of these councils to represent health pro-

fessions, health agencies, local government and consumers. This is a remarkable evidence of cooperation when one considers that the estimated cost to the association is on the order of \$2,500. The board of censors, acting for the association, has repeatedly encouraged county society leadership in all matters related to the Alabama RMP.

At a meeting of the Advisory Committee of the Alabama Regional Medical Program on April 9, 1966, it was suggested that the physicians over the State should be informed in depth on our own program. In response to this suggestion a letter of information signed by a representative of the faculty of the medical college, and the president of the Medical Association of the State of Alabama was mailed from the central office of the association in Montgomery to every member. Physician education concerning the RMP was furthered by an article in the February 1967 issue of the Journal of the Medical Association of the State of Alabama by the chairman of the department of medicine at the medical college. The president's page in the March 1967 issue of the Journal of the Medical Association of the State of Alabama was devoted to the RMP.

For years there have been three scientific sessions at the annual meeting of the association. The president of the medical association decided that heart disease, cancer, and stroke would be the theme of the April 1967,

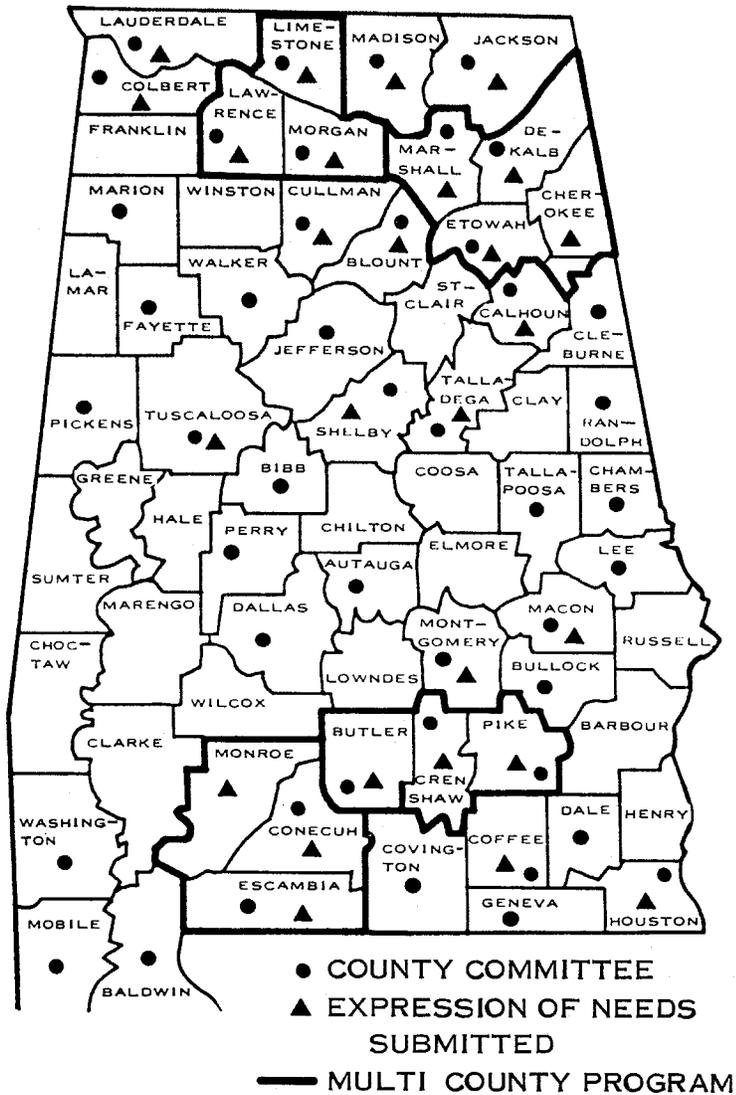
meeting, permitting categorical emphasis at each of the three sessions. In addition, Dr. Robert Q. Marston, associate director of NIH, and director, Division of Regional Medical Programs, gave the annual oration known as the Jerome Cochran lecture. Thus, scientific sessions of the annual program of the association served to stimulate an awareness of the regional medical program at both the National and regional levels.

Presidents and representatives of the major county medical societies and members from the staff and administration of their hospital or hospitals were invited to attend an all day orientation program on regional medical programs at the medical center on July 14, 1967. Those attending were brought up to date concerning activity and problems in Regions more advanced in the program than we, and our position at the time was clearly stated. Informational data contained in the folder handed each registrant at the meeting was shortly thereafter mailed to the president and secretary of each county medical society. Later, a statement prepared by the director of the Alabama Regional Medical Program entitled "General Concepts for Regional Medical Program Planning and Items Having Specific Bearing on Planning for the Alabama Regional Medical Program" was distributed to the president of each county medical society and to each member of his appointed committee, which is to relate to the Alabama RMP.

As previously indicated, the Alabama Regional Medical Program developed excellent rapport with and strong endorsement and support of the board of trustees and the State Board of Censors of the Medical Association of the State of Alabama. With this firm and cordial relationship established, it was then possible to proceed toward stimulation of leadership at the county society level. At a meeting of the advisory committee to the Alabama RMP on May 20, 1967, it was recommended that local initiative and cooperative arrangements on a county or multicounty basis be exerted by the county medical society or societies and that in any event proposals expressing needs related to the Alabama RMP must have the approval of the respective county society or multicounty societies concerned. In line with this recommendation a letter dated June 9, 1967, was mailed to the major county medical societies informing them of an orientation program on the subject of regional medical programs to be held at the medical center. This communication requested the president of the county society to appoint representatives from his society and members from the staff and administration of the hospital or hospitals in his county to attend. A folder containing the agenda and other pertinent material was distributed to each person who registered at the meeting.

Following this meeting it was decided that the president of each

FIGURE 1
ALABAMA REGIONAL MEDICAL PROGRAM



county medical society in the State should be requested to appoint a committee to relate to the Alabama Regional Medical Program. The State board of censors was requested to send a letter to each county society president, pointing out the need for such a committee on a county or multicounty basis and informing them of the forthcoming letter of request from the central office of the Alabama RMP. The chairman's letter strongly urged cooperation in this matter. Our letter followed in 5 days. After an appropriate interval the executive director of the medical association, utilizing the WATS line of the association's central office, phoned those unresponsive and called their attention to the written endorsement of the State board of censors and the need for action. A letter from the chairman of the board of censors instructed the president of each county society to forward a list of membership of the requested committee within 10 days of his receipt of communication. In the same week, a letter from the central office of the RMP to the same individuals pointed to the need for urgency in creating a committee to be concerned with developing the respective county or multicounty health needs as might be provided for in our regional medical program. This reciprocal pressure exerted by the association and the RMP resulted ultimately in gratifying response. To date a committee, appointed by county medical society presidents, on a single or multicounty

basis, to relate to the Alabama Regional Medical Program exists in 50 of our 67 counties; 28 of those counties, on a county or multicounty basis, have expressed their needs to improve the quality of medical care in the areas of heart, cancer, and stroke (fig. 1).

The Alabama Regional Medical Program has been accorded strong support and encouragement from its incipiency by the officers, board of trustees, board of censors and central office staff of the Medical Association of the State of Alabama, which is also the State board of health. The board of trustees and the board of censors have consistently exerted positive action in behalf of the program's endeavors, especially in the area of encouraging county medical society leadership.

Among the factors contributing toward the development of the mutually cordial relationship between the Medical Association of the State of Alabama and the Alabama RMP, a few are deemed worthy of mention:

1. An 1875 legislative act in the State of Alabama designating the medical association as the State board of health with its attendant responsibilities.

2. Initial and subsequent collaboration between the president and the board of censors of the association and the dean of the Medical College of Alabama in the matter of committee appointments, including the State advisory committee on the Alabama Regional Medical Program.

3. Early submission of a statement of policy by the advisory committee to the board of censors for consideration and subsequent discussions with the board on matters in sensitive areas which might become controversial.

4. Establishment of a system of coordinated communication between the RMP and the central office of the medical association, affording a current file on RMP activities for review by the board of censors, board of trustees, officers and interested members of the association.

5. Dissemination of information to the full membership of the association relative to regional medical programs in general with specifics concerning the program in Alabama, through articles in the official publications of the association, a personal letter signed by a member of the full-time faculty of the medical college and the president of the medical association, the development of heart, cancer, and stroke as the theme for the three scientific sessions at the April 1967 annual meeting of the association with Dr. Robert Q. Marston delivering the annual oration, known as the Jerome Cochran lecture, and an all-day orientation program.

6. Consensus of the advisory committee and demand of the board of censors of the medical association that leadership in the Alabama Regional Medical Program at the local level be assumed by the county medical society.

22

THE SUBREGIONAL CONCEPT AND LIAISON STAFF

WARD BENTLEY
Chief, Area Liaison
Greater Delaware Valley
Regional Medical Program

WILLIAM C. SPRING, JR., M.D.
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For administrative purposes this region has been divided into areas with administrative staff (liaison officers) assigned to offices in these areas. Identification of health needs so diverse and so complex throughout this region becomes more feasible at the local area level where the particular needs of different kinds of population groups are more easily identified.

Sharp distinctions exist in various parts of the region between the need for health services and facilities and their accessibility; the public recognition of, and attitudes toward, health needs and health problems; and even the ways in which communities seek to solve their health problems. Such diversity, coupled with the natural concentrations of medical services

and facilities which form the foci of medical service areas—sometimes called catchment areas or watersheds—forms the nidus of subregionalization.

By approaching the regional problems at this level, it is hoped to achieve fuller and better local participation and to foster grass roots, areawide activities. In this way we hope to have an opportunity to identify community leadership, to get to know more local people and know them better, in order to have an exchange of ideas, to gain their understanding and acceptance for the regional medical program and to gain an understanding of their thinking as to their own local health needs. We hope in this way we can be in a better position to guide the local community leadership in planning for programming for the delivery of health care while at the same time maintaining centralized direction so that the area health needs can be met within the framework of regional medical planning.

Throughout the region the time required for patients in various locales to travel for special medical treatment varies greatly as do the available kinds of transportation and the nature and quality of connecting arteries. A variety of natural barriers such as mountains, rivers, and canals add to this problem.

This region encompasses 32 counties in portions of three States with a population of nearly 10 million. There are approximately 250 hospitals in

the region and one osteopathic and five allopathic medical schools located in Philadelphia.

Within this region there are eight standard metropolitan statistical areas as defined by the U.S. Census Bureau. These are: Wilkes-Barre, Hazleton (Luzerne County, Pa.); Scranton (Lackawanna County, Pa.); Reading (Berks County, Pa.); Allentown, Bethlehem, Easton and Phillipsburg (Lehigh and Northampton Counties, Pa., and Warren County N.J.); Philadelphia (Chester, Montgomery, Bucks, Delaware, and Philadelphia Counties in Pennsylvania, and Gloucester, Camden, and Burlington Counties in New Jersey); Wilmington (New Castle County, Del., and Salem County, N.J.); Trenton (Mercer County, N.J.); Atlantic City (Atlantic County, N.J.).

The region tentatively has been subdivided into 10 areas. These have been based on what has been considered the natural watershed in terms of where patients seek, and are referred for, medical care, and physicians' sources of continuing education. It is interesting to note that these 10 areas conform rather closely to the eight standard metropolitan statistical areas (see illustration No. 1).

In making these preliminary divisions other health related regional plans have also been considered, for example, the regions under Comprehensive Health Planning (Public Law 89-749) (see illustration No. 2). Under this plan the State of Dela-

ware is considered a single region as it is in our program and the State of New Jersey has not yet determined its divisions. In Pennsylvania our two areas in Philadelphia and our two adjacent areas, North Metropolitan (Chester and Delaware Counties) and West Metropolitan (Montgomery and Bucks Counties) coincide with proposed Comprehensive Health Planning Region No. 1. Proposed Comprehensive Health Planning Region No. 2 covers both our Lehigh Valley and Northeast Pennsylvania areas except for Columbia County which we believe relates to our northeast Pennsylvania area but which is in Region 4 for health planning. Proposed Comprehensive Health Planning Region 2 also includes three other counties which, based on current knowledge, we judge to fall into other regional medical programs.

As our program progresses and more is learned regarding these areas, the contours and size of the area outlines will change and the number of these areas could increase or decrease. Subdivision, coalescence, and realignment are expected. The 10 initially designated areas with their overlapping outlines indicated are shown in illustration No. 3.

As a means of working on the specific needs in these areas, we are developing areawide committees. Each committee is to be broadly based, providing for representation, geographically throughout the various communities comprising the area, and

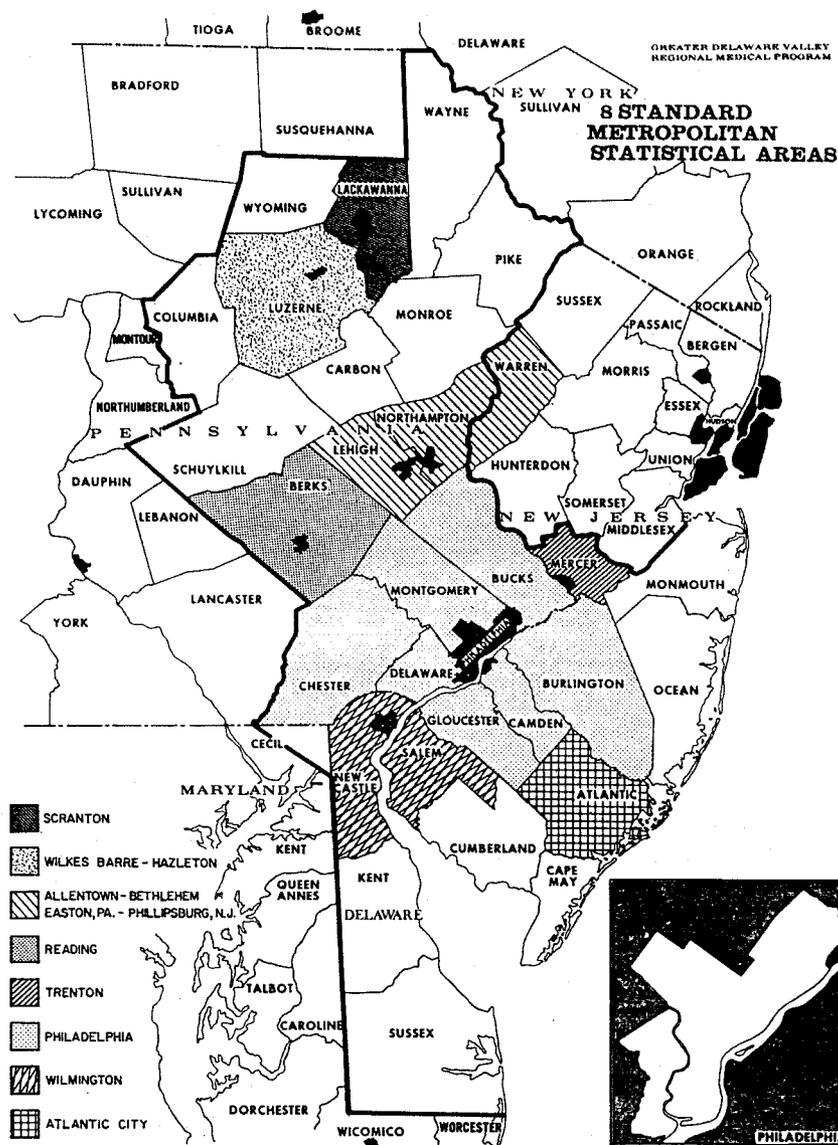


ILLUSTRATION 1

categorically among physicians, hospital administrators, allied health professionals, welfare and related agencies, labor, industry and community councils, and other community and health leaders. By working with these committees we hope to increase local participation and to gain the kind of local insights described earlier. Through these committees we hope to determine the existence of, or logical opportunity for, cooperative arrangements between communities and counties and the medical institutions within them and to foster such arrangements.

The real health needs of the region can best be identified and met through maximum understanding of the representative thinking of the communities. The areawide committees provide a platform for widely diverse and representative thinkers in the communities to establish a dialogue whereby they can explore their own health needs and convey their thoughts to those responsible for regional medical program planning.

We expect, as they become officially constituted, that these areawide committees will participate in considering proposals pertaining to their areas and will comment on these proposals as they proceed through the decision-making components of the program. In this way, decisions can be based on a recognition and consideration of wider aspects of community thinking rather than on limited and perhaps biased recommendations from individual institutions which may develop

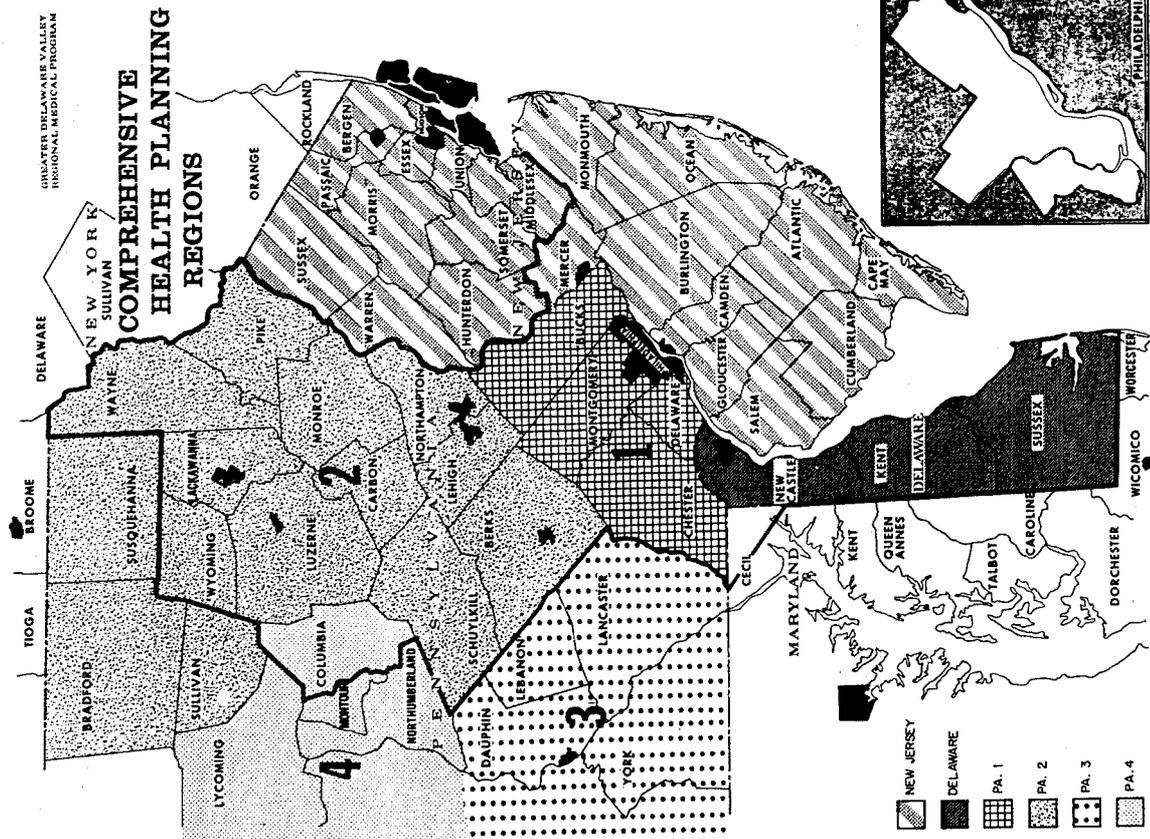


ILLUSTRATION 2

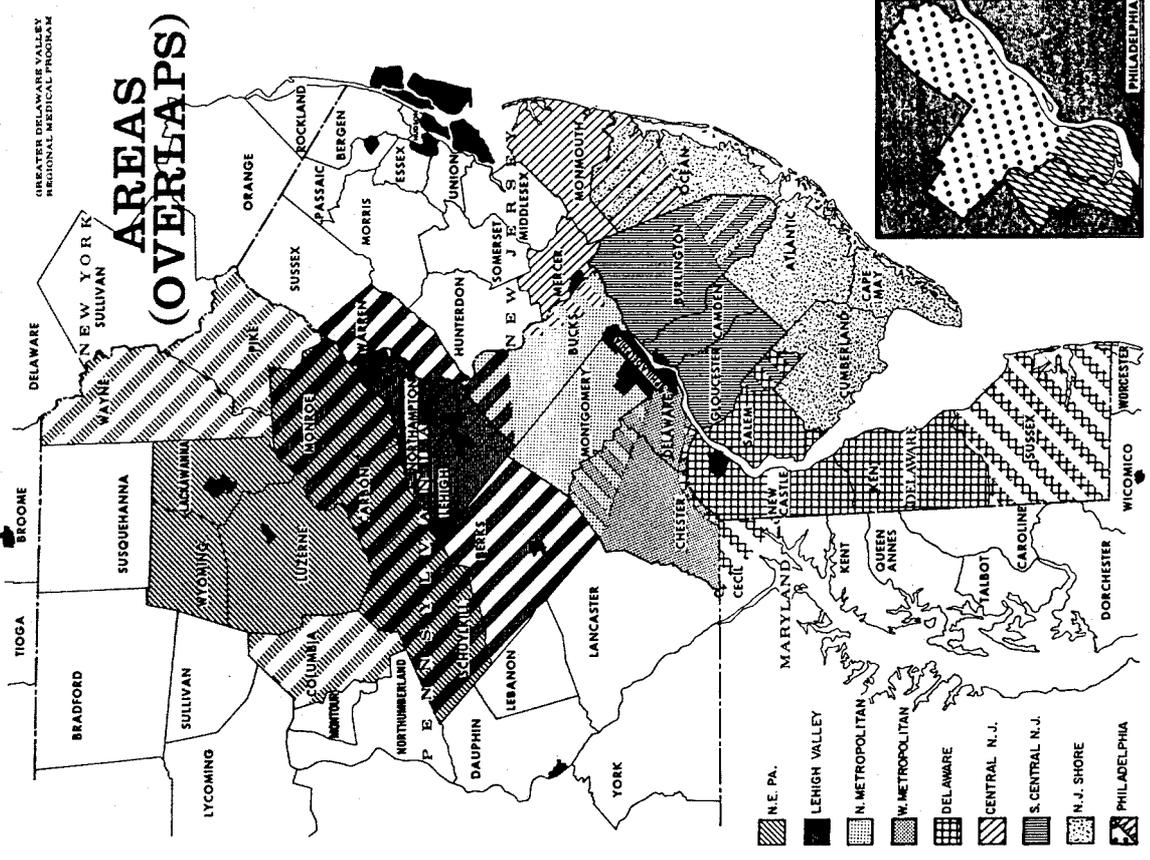


ILLUSTRATION 3

THE DELINEATION OF SUBREGIONAL HEALTH SERVICE AREAS AS A BASIC STEP IN REGIONAL MEDICAL PLANNING

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proposals. The committees will also participate at the local level in recommending priorities for projects. It is expected that these areawide committees will utilize in their deliberations the data developed by the regionwide task forces and committees and vice versa. The areawide committees will be expected to submit recommendations for appointments to the regional advisory group, thus rounding out its geographic and categorical representation.

This arrangement establishes in the minds of community leadership a feeling of direct participation in regional medical planning which generates the cooperative attitudes needed to insure the success of the program.

The areawide committees cannot be expected to develop and function without administrative staff direction and assistance. To provide for this we have recruited an area liaison staff comprised of the chief, area liaison and, to date, four liaison officers assigned to offices within areas. We foresee each area served by its own liaison officer. For now, liaison officers have been assigned to two or more of the initially defined areas. They are meeting with community leaders, visiting the hospitals in their area to talk with the administrators, and the medical and nursing staff and speaking before community groups, informing them of the regional medical program.

The liaison officers participate in identifying appropriate community leadership to serve on the committees,

in developing the committees and in assisting them in planning. They provide for two-way communications between the areawide committees and the coordinator's office (thus, to the other planning and decisionmaking components of the program).

A committee of volunteers cannot be expected to fulfill all of the necessary full-time professional or even secretarial chores. In order to maintain direction and continuity we expect to provide for direct staffing for these committees as they begin to operate full scale. This staffing would be funded under the program but would be apart from the liaison officer who will provide guidance and assistance but not staff services.

It is expected that different experimental approaches will be used in dealing with different areas. For example: in the North Philadelphia area the existing North Philadelphia Regional Health Affiliates is expected to serve as the areawide committee for our program. Special staff services for this added responsibility are being supported by the regional medical program.

In Delaware, the Delaware Health Facilities Planning Council has submitted a proposal offering to let its board of directors serve as the nucleus for an areawide committee and to recommend additional members to round out the geographic and categorical requisites for the committee. An approach similar to this with some variations appears to be taking shape in the Lehigh Valley area. In the

northeast Pennsylvania area which is focused around Wilkes-Barre and Scranton, we are developing an areawide committee which we are encouraging to broaden so as to serve that area as a health facilities planning council as well. In both the Delaware and northeast Pennsylvania areas, we are fostering further broadening of the function of these committees to serve in still a third capacity—as a comprehensive health planning committee. Elsewhere the areawide committees are being formed directly by preliminary meetings with various community health leaders.

These mechanisms and approaches are experimental and much remains to be determined as the program grows. Revisions to meet the changing needs in the region are expected. This arrangement is believed to have sufficiently flexibility to provide for change as the program develops.

Early in the planning of the Connecticut Regional Medical Program, the need to divide the State into a number of health service areas was recognized. Regionalization, however, depends upon more than merely drawing lines on a map. The identification of appropriate subregional areas cannot be viewed as an end in itself, but rather as a necessary step in a much more complex task of creating relationships and functional linkages between the State level medical care resources within the Connecticut region and those institutions and practitioners rendering patient care in the community.

The delineation of subregional areas is not a new planning problem. There are as many meaningful ways of identifying areal delimitations

within a region as there are relevant purposes to be served. In order to understand what has been done in Connecticut in delineating health service areas within the region, it is necessary to consider the objectives which have been established for the program. Emphasis upon health service areas can then be seen as a necessary element in the development of the institutionalized process and the organized structure through which cooperative arrangements to improve patient care in the fields of heart disease, cancer, and stroke depend.

The ultimate objective to be served by strengthening cooperative arrangements among the elements of the medical care system in Connecticut is to insure the delivery of comprehensive high-quality medical care to the entire population of this region. Comprehensive care has many dimensions. It involves first of all completeness. It seeks to integrate prevention with treatment and rehabilitation and to foster the active promotion of health and education for it. It seeks to maximize the availability and accessibility of quality care provided on a multiprofessional basis in a personalized manner. It also underscores the importance of continuity, both in the provision of care and in the assumption of responsibility for it.

Regional coordination is viewed as the necessary organizational mechanism for the realization of this ideal. Regionalization is seen as the means for increasing the capability of prac-

tioners and other parts of the medical care system at the community level to provide the best possible care for individual patients. The approach toward regionalization which is being pursued by the Connecticut Regional Medical Program encompasses three elements. First, the improvement of the care rendered to heart disease, cancer, and stroke patients involves the formalization and extension of an organized network of medical capability in which the facilities, institutions, and purveyors of services within the various areas of the region will be appropriately coordinated and interrelated among themselves at the same time that each is effectively linked through reciprocal interaction to the more specialized statewide resources within Connecticut. Second, regionalization provides the basis for the creation of an organized system for the continuing education of all health and allied professionals. Continuing education, it is the premise of this program, must be incorporated into the daily practice of those who render patient care. Further institutionalization of the ongoing process of regional interaction is seen as the essential vehicle to insure the success of further extensions in this field of concern. Finally, the Connecticut program through the primacy of its emphasis upon enhancing and reinforcing local level capability seeks to maximize the involvement and participation of the community in the development of their own medical care systems. The choices which the

Connecticut region faces in the coming years can no longer be predicated upon expert opinion or professional judgment alone. Increasingly the wisdom of the decisions which will be made and of the use of what results rests upon the technical consciousness of the consumer public.

The specifics of the various action courses that have been charted by the Connecticut Regional Medical Program have been shaped by the distinctive features of this medical care region. Connecticut, with a population approaching 3 million persons, is experiencing more rapid growth than any other northeastern State. Heavily industrialized, it ranks first among the 50 States in average per capita income. Although Connecticut is small in area, it possesses a number of medium-size urban centers which are tied together by an excellent highway system. There are, nevertheless, substantial differences between its urban corridor and its more rural sections. The region is served by a highly developed network of 35 voluntary, acute general hospitals and 15 public, chronic disease institutions, and these are supplemented by more than 250 extended care facilities. There are in Connecticut 175 physicians per 100,000 persons, one-third more than for the country as a whole, and the State has a corresponding advantage in terms of dentists, nurses, and other categories of health manpower. The many voluntary health agencies and organizations that function in Connecticut reflect a long tradition of

public spirited concern and involvement in various facets of the region's health care system.

With the presence of the Yale University Medical Center, Connecticut contains within its borders one of the oldest and most esteemed institutions of medical education in the country. About 10 percent of the practicing physicians of the region are graduates of this school. There is emerging within the medical center, as within the university as a whole, a new sense of commitment toward involvement in community affairs. At the same time, with the development of the University of Connecticut Medical Center which will admit its first medical and dental students in the fall of 1968, an important new resource for patient care is being introduced into the region. The University of Connecticut now possesses a wide array of schools of the health-related professions.

In a medical care region which is so richly endowed with health resources, the problems of improving patient care do not center primarily upon the creation of additional facilities, the introduction of new technologies, or the augmentation of the supply of health manpower. Rather, the essential task is to meet the needs of the population at the local level in ways which more fully incorporate the great potential commanded by each of the medical care elements within the region.

The mission that is visualized for the Connecticut Regional Medical

Program, it follows, is one of identifying, promoting and assisting in the organization of the optimum relationships and functional linkages among the various elements of the medical care system of Connecticut. Given its emphasis upon strengthening local capabilities, the program faces in two directions. On the one hand, it seeks to identify the ways in which the two university medical centers and the other major resources of the Connecticut region can best make available their specialized competencies and skills as technical backstopping and reinforcement to the practitioners and institutions which render care at the local level. On the other hand, the program seeks to stimulate organized and sustained planning within the subregional areas of the State in order to develop the fullest working arrangements both between the community hospitals, and among them and the various extended care facilities and programs, the public and voluntary health agencies, and the community-based practicing professions.

Connecticut is an essentially self-contained medical care region. While there is some leakage and spillover at certain points around its borders, most residents of the State secure care within the region and relatively few from other States seek services here. The various elements involved in medical care are so located that it is possible to identify a number of major focal points which serve to define more or less sharply the exist-

ing patterns of patient movement and professional practice. As a working hypothesis for the program, the State has been divided into 10 health service areas. These areas were determined on the basis of analysis of hospital admissions during 1965 by township of residence, supplemented by consideration of the evolving pattern of trade and service activities in the State as set forth by the Connecticut Development Commission. Attention has been given to the correlation of these health service areas with the subregional plan of organization of other health agencies of Connecticut. It is encouraging to the staff of the CRMP that the State Hill-Burton agency, the Connecticut Hospital Planning Commission, and several other voluntary health agencies within the region have recently adopted this map.

Each of these health service areas contains a sufficient range of resources to function as a relatively self-sufficient and discrete component of the Connecticut medical care region. However, there are important differences among areas. The largest area, which centers upon the State capital of Hartford, has 10 times the population of the smallest in the northwestern corner of the State. There is an even greater disparity in the medical care resources which the 10 areas command. Each, nonetheless, possesses at least two hospitals and is felt to have the capability of serving as the primary level of a regionalized

system for the provision of comprehensive, quality care.

A major emphasis of the Connecticut Regional Medical Program is to promote a strengthening of the cooperative arrangements within each of these health service areas. Through better coordination between those responsible for the various modalities of patient care, it is possible to insure a more timely mobilization of all available medical resources as well as better and more logical use of them. The reasons for the concern which the program is directing to the organization of care within these health service areas should be obvious. The problems represented by heart disease, cancer and stroke are first and foremost problems of people. In order to deal with these problems with maximum effectiveness, it is necessary to reach the people in the communities in which they live and work and play, not in some distant medical center.

Active pursuit of planning and coordination within these health service areas complements statewide effort along these lines. It seems to give specificity and the dimension of reality to what too often constitutes generality at the regional level. It also provides an opportunity for a spellout of special potentials as well as limitations within an area, and this, in turn, influences and corrects State level activity. Finally, by orienting the separate elements of the medical care system to action within a defined geographic area, it helps to identify more

readily the special characteristics of different parts of the region and the possibility of developing special service arrangements within them.

A second major emphasis of the program is to assist in creating more workable bridges between the health service areas and the centers of medical care which serve as resources for the entire State. This calls first of all for the development of working partnerships between key hospitals and one or the other of the university medical centers. The creation of a "third faculty" of the schools of medicine through the joint appointment of full time chiefs of service in selected hospitals throughout the region is visualized as the primary vehicle for this purpose. These persons, together with supporting staff, would be based in a local hospital but would be expected to spend a part of their time in the university medical center setting. In turn, the clinical faculty of the universities would be augmented to provide counterparts within the medical centers to serve as primary liaisons with the hospital appointees.

This "third faculty" would assume multiple roles. First, these persons would actively participate in the intern and residency training programs within their institutions. Secondly, they would serve as a major force in the organization and provision of continuing education activities. Third, they would, through consultation, assist in the management of patients. Fourth, they would participate in the analysis and evalua-

tion of patient care rendered in their health service area. Fifth, while helping to develop more comprehensive patient care programs at the local level, they would also expedite and facilitate the process of selected patient referral. In all of these respects, they would mobilize outside medical resources and act as conduits for bringing the expertise and specialized capabilities of the universities and the other regional centers into medical practice at the local scene. And sixth, they could be expected to exercise a key resource and leadership role in the coordination and planning of all of the medical care elements within a health service area.

The 10 health service areas which have been delineated as a working hypothesis of the Connecticut Regional Medical Program constitute a useful matrix for the structuring of the various demonstrations in regionalization which are being initiated within the State. The identification of these areas has served to highlight workable focal points which help to establish a framework for an institutionalized process of sharing and cooperation. Over time, these areas will provide the essential matrix through which the State level medical care resources and the capabilities which exist in the community can be more effectively interrelated not only to the benefit of the population to be served but also to the mutual advantage of each.

The ways in which these subregional focal points develop as centers

for the coordination of patient care within each of these health service areas will be diverse, it can be expected. Through the program there will emerge a more fully developed basis for an organized two-way flow between these areas and the more specialized statewide resources and capabilities. Moving from the core of each of these health areas to its boundary with other areas, there is a zone of indifference. These boundaries are not walls; they are subject to revision over time in the light of operating experience and in response to changing circumstances.

It is nonetheless our hope that this map will be adopted by an increasing number of the planning and operating programs active in the health field within the State. There are cogent reasons why some of the health programs which are currently functioning in Connecticut rely upon other areal divisions of the State. Over time, however, the advantages which many of these more specialized programs may derive from their own regional delineations are likely to be offset by the increasing costs which they impose as a constraining influence in effective coordination and collaboration. The wisdom of these delineations of health service areas is in the final analysis a practical matter, to be validated by improvements achieved in the ability of the medical care system of the Connecticut region to deliver comprehensive, high-quality patient care.

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REGIONAL ADVISORY GROUP AND REVIEW PROCESS

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Within the lifetime of those now associated with regional medical programs, there have been significant changes in the relative roles of local, State, and Federal governments in the United States. Depending upon one's political views, these changes might be attributed to (a) the neglect and willful abandonment by local governments, or (b) the bureaucratic usurpment by Federal Government of the rights and privileges of private citizens. The legislation creating regional medical programs was one of several laws enacted by the 89th Congress that run countercurrent to this trend. The replacement of the responsibility for self-determination of the future upon local communities or regions rather than centralized government can be viewed with mixed emotions.

Complaints that (Uncle) Sam made the pants too long, and the sleeves too short, result from having only one pattern or style available

for a rather heterogeneous public. Laws such as Public Law 89-239 make it possible for the local consumer to acquire a custom-tailored outfit. However, it's up to him to provide a competent tailor, and to have the patience to stand still during multiple fittings. If regionalization and the development of a health care system defined by the needs and forces operating within an area are to result, then some means must be found to integrate the several component parts of the current health service nonsystem. To accomplish this task, the law has provided only a few suggestions, and even fewer tools. The most important thing that this legislation has provided is the opportunity for innovation and creativity. Congress has provided the dollars which are required to divert professional talent into the development of such programs. The full-time professionals engaged in playing the game of regional medical programs can construct a static and theoretically functional vehicle for progress. The law, however, delegates decisionmaking and therefore ultimate power to the regional advisory group. It is this group, then, that must provide the drive and guiding force necessary for successful regionalization.

This paper proposes to review and analyze the actions of the regional advisory group of the Kansas Regional Medical Program in an attempt to identify factors which may have general relevance. Data

were gathered by personal observations, as well as a review of the rather elaborate minutes of regional advisory group meetings provided by our recorders, Mrs. Helen Curry and Miss Pauline Farrell.

During the past 2 years, there have been eight meetings of the group. Figure 1 illustrates the dates of these meetings, the numbers of members constituting the group at each time as well as the number attending. The number of personnel, expressed as full-time equivalents, active in support of the program at each point in time is indicated. Meetings have occurred at 3-4 month intervals. There have been two exceptions to this generalization. Five months elapsed between the fourth and fifth meetings; this was associated with difficulties in obtaining full-time staff for the program. We were also waiting for a decision on the operational grant request. There was an interval of only 2 months between the fifth and sixth meetings; this was related to the fact that after five new members were appointed to the regional advisory group a decision was made to increase the frequency of meetings.

Table I shows the distribution of membership in the regional advisory group at the time of its first meeting in 1965, and its last meeting in 1967. There has been a marked increase in the proportion of consumers and physicians in private practice. There has been a marked reduction in the pro-

FIGURE 1
ATTENDANCE AT MEETINGS, SIZE OF STAFF

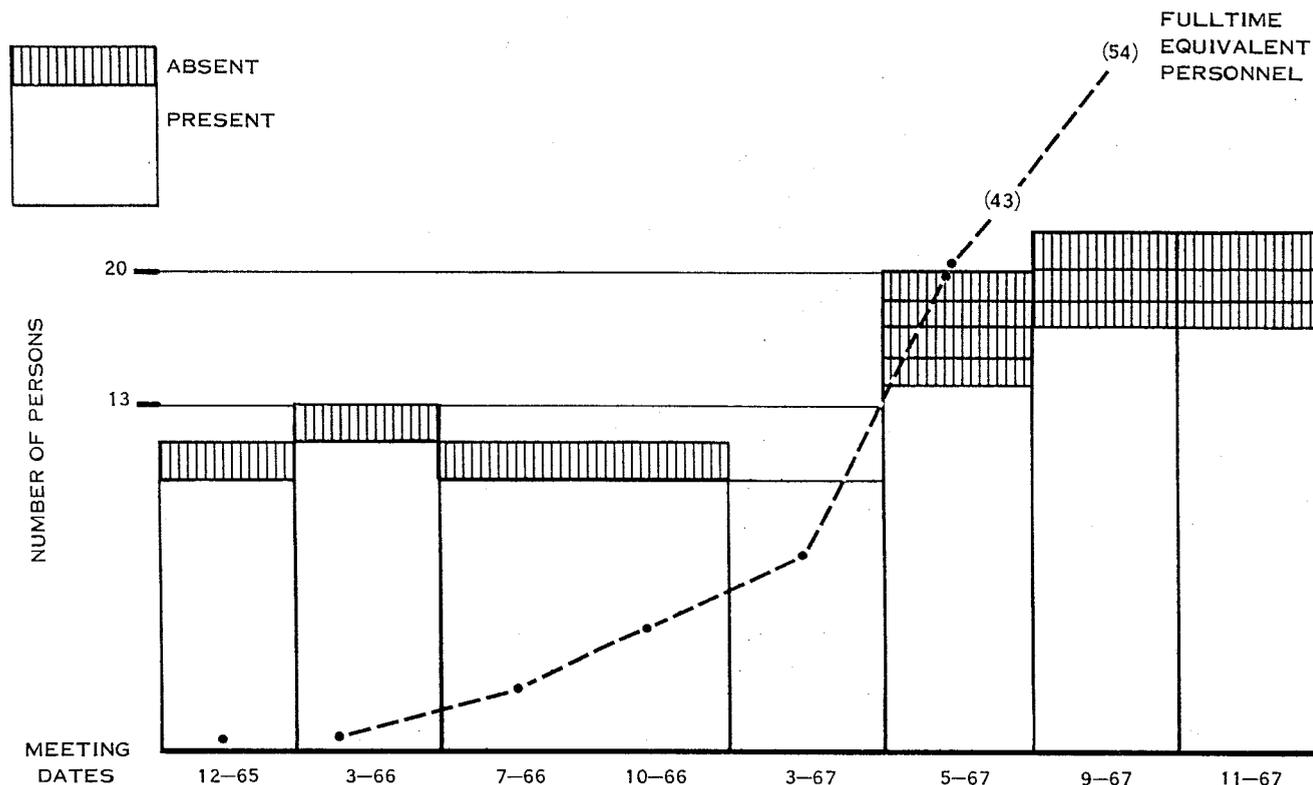


TABLE I

DISTRIBUTION OF MEMBERSHIP OF RAG (PERCENT)

	Nov. 1965	Nov. 1967
Consumers.....	15	36
Hospital representatives...	23	13
Physicians.....	15	23
Nurses.....	8	5
Health department.....	0	5
Medical center.....	38	18

portional representation of the University Medical Center.

Table II presents the relative attendance rates for various subgroups of the membership. The lowest attendance rate was for consumers (59 percent). Attendance at meetings also can be analyzed as to the circumstances surrounding appointments. The original group (nine of the 13 are still active) has an attendance rate of 94 percent. Appointees, specifically nominated by name by the group or medical center officials, have an 89 percent attendance rate. Other appointees have an attendance rate of 20 percent. These data were derived by using as denominators the total accumulative RAG-hours at risk for each member.

To this point, this has been a simple recitation of statistics. I should now like to discuss what happened in these meetings. In doing this, I shall consider the first seven meetings as a preseason warmup for the eighth and most recent meeting. Table III summarizes the content of the several meetings. The five categories listed were derived inductively from a re-

TABLE II

RELATIVE ATTENDANCE RATES

	Percent
Medical center.....	97
Nursing.....	100
Health department.....	100
Physicians.....	87
Hospital representatives.....	96
Consumers.....	59
Original group.....	94
Requested appointees.....	89
Additional appointees.....	20
Entire group.....	84

(448 RAG-hours at risk)

view of the minutes as well as personal observations. The category entitled "Discussion of Philosophy" might have been subtitled "Trying to Explain to Each Other What It Is We Think We're Doing, and Why." This was the most popular topic and consumed a significant portion of time in the first seven meetings. Discussions of interregional efforts, particularly in the greater Kansas City area, occurred on four occasions. A discussion of the mechanics of operation of the program included the means by which (1) regionalization might occur, (2) projects would evolve into a program and (3) additional groups could become involved in the program.

Mechanics were discussed only after the group had consumed a great deal of time in the first three meetings discussing general philosophy. On two occasions the enlargement of the group membership was discussed. At the time of this initial discussion, in July of 1966, there were 13 members.

As a result of these requests, the membership was expanded to 22.

Perhaps more revealing is an analysis of who was responsible for each discussion recorded. On 19 out of 22 occasions on record (86 percent of the time) members from the medical center held forth.

Table III also indicates the number of decisions made by the group at each meeting. At the second meeting they approved the planning grant application. In the third meeting they voted to expand the membership. In the fourth meeting the operational grant application was approved. It is rather important to note the nature of the approvals given at the second and fourth meetings. Perhaps this can best be described by quoting directly from the first Annual Report of the Regional Advisory Group. "The planning grant was certainly not specific . . . The operational grant was prepared hurriedly and the council approved it in principle, but did not actually review it

in detail." During the fifth meeting the group again requested expansion of membership since no action was taken on its prior request. At the sixth and seventh meetings no decisions were made; only philosophy and mechanics were discussed. Finally, on November 18, 1967, a test of the group's decision making ability occurred.

At that time, 11 project applications requesting over \$3 million were reviewed. These had been through an established internal review process involving the staff and scientific advisory panels. The group was provided with the comments of the scientific advisory panels (not those of the staff). The group made 15 major decisions. They decided how they would vote. It was decided that the staff would not be asked to testify regarding their own opinions of the various proposals. They requested project directors to be present in the future at the time applications were reviewed. They also made a decision

TABLE III
CONTENT OF MEETINGS

	Date							
	11/65	3/66	7/66	10/66	3/67	5/67	9/67	11/67
Discussion of philosophy.....	X	X	X	X	X	X	X	(X)
Interregional efforts.....	X	X	(KC)	X	(KC)			
Discussion of mechanics.....				X		X	X	X
Enlargement of RAG.....			X		X			
Decisionmaking by RAG....		X	X	X	X			X
Decisions made.....	0	1	1	1	1	0	0	(Suppl) 15

A PROPOSED CIRCUIT POSTGRADUATE PROGRAM IN HEART DISEASE, CANCER, STROKE, AND RELATED DISEASES IN THE OREGON REGION

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Oregon Regional Medical Program

to review projects with regard to general value, appropriateness, and priority, but not to go into details such as line-item reviews of budgets proposed. Within a 5-hour period, all 11 projects were considered; five were approved for submission in the first supplemental operational grant application, two were returned for further work, and four were disapproved. For the first time, the regional advisory group actually functioned as a group in decision making.

I should now like to go back and try to draw some conclusions from this anecdotal presentation. First, the name of the game is GROUP. If the regional advisory group of the Kansas program is functioning as prescribed by law it is not by chance. Certain scientific principles relating to the formation and behavior of groups are evident. The RAG is small enough to permit interaction between its members and thus allow the ultimate formation of a cohesive group. Early meetings consisted entirely of explorations of common ground. They were devoted to standardizing those attitudes and obtaining a base of information upon which decisions would be made. To form a group there must be a high rate of attendance and interaction by the membership. Motivation is essential for this kind of behavior. The high attendance rate recorded suggests that the criteria for selection of members were valid in terms of defining those who were both capable and interested in

functioning as members of this group, and also that group members derived satisfactions from their efforts.

When new members were introduced into the group, it was paralyzed. At the sixth and seventh meetings, after five new members had been added, we regressed to a repetition of philosophy and mechanics of the program. All the pre-existing group could do was reinforce its position. No decisions were made. When finally given the responsibility for group decision making, however, they were equal to the challenge.

Let me close with some personal interpretations of the implications of these observations: A regional advisory group should be a group, and not a mob. If such bodies are to fulfill their assigned responsibilities, their initial size should be limited. Less emphasis should be placed upon the kinds of organizations represented, and more consideration given to the kinds of people necessary to do the job.

Since consumers have a hard time speaking the language of medical care, they need careful schooling. It might be more appropriate if governmental agencies would not press for an immediate representation of consumers in the majority, but permit advisory groups gradually to increase the proportion of consumer membership over a period of 3-4 years.

Since the introduction of new members into a group is extremely destructive to the group process and paralyzes decision making, it might

be anticipated that any group which has a highly fluctuating membership, regardless of the underlying reasons, will have great difficulty in functioning. Therefore, considerable effort should be devoted to facilitating attendance of members by exploring optimal times, places, and durations of meetings.

If group action is really desired, a deliberate strategy should be developed which aims at the formation of a group to advise the region. Perhaps we should talk of groups advising regions, or GAR's instead of RAG's. Appropriate consultants should be utilized. I have been speaking as an amateur about group dynamics. There are experts in this field. We have utilized such consultants and found them to be extremely helpful.

Finally, the natural history of the activities of a regional advisory group should be viewed as a group process. Thus, some events which seemed to be unanticipated catastrophes may be seen as predictable, and even desirable.

The goal of a regional medical program is improved patient care. The regional advisory group would seem to be the key to effective regionalization. The development of an effective regional advisory group depends upon social processes. If the ultimate goals of medicine are social, it seems not only possible, but even probable, that more attention must be paid to social processes in order to achieve social goals.

The Oregon Regional Medical Program (ORMP) proposes to present convenient, inexpensive, useful circuit postgraduate education courses dealing with heart disease, cancer, stroke and related diseases to physicians and allied health personnel in the Oregon region. The ultimate goal of the program will be to present to health professionals information they can use to improve care given to their patients. The circuit program is an important part of the overall plan for continuing education in the Oregon region.

Currently, the Division of Continuing Medical Education of the University of Oregon Medical School makes four circuit stops. The ORMP circuit proposal will enable the division to increase the number of circuit stops to 18 including stops in Idaho and Mon-

tana. At each circuit stop, one heart, one cancer, one stroke or related disease program will be presented each year. During the first year, most of the courses will be for practicing physicians. Subsequent circuit programs for other health professionals such as nurses, physical therapists and medical technologists will be planned and presented.

Each circuit course lasts 5½ hours and is presented in the afternoon from 1:30 p.m. to 6 p.m. Local course coordinators selected by the host medical society arrange accommodations for the program. The most desirable meeting place is the community hospital. An average of 25–30 physicians have attended the circuit course at each stop. Physicians attending the program are given packets such as the one distributed to you for the “new concepts in the diagnosis and treatment of shock” program which was presented in five Oregon communities in 1966–67. The packet contains a program schedule, a brief case history, a participant reaction form and selected reprints.

First, let us look at the program sheet which describes the hour-by-hour schedule for the shock course. The program starts with two concise lectures, “the origin of shock,” and “catacolamines and shock.” The first lecture introduces the course while the second emphasizes an important new concept in the treatment of shock. At the conclusion of the lectures, course participants divide into small groups to discuss the patient

described in the “case conference” which is included in the packet.

After the participants read the protocol, the faculty discussion leader asks, “What would you do now?” and the discussion begins. The faculty moderator encourages maximal participation of physicians in the group. Rather than answering questions asked by the group, he directs them back to the participants. Physicians are told that specific questions will be answered during the panel discussion that follows. As course participants ask for specific information such as the results of laboratory work, X-ray findings and changes in the patient’s condition, this information is given to them by the faculty from the patient’s medical record.

Following the case discussion, participants reconvene for the panel discussion of the same case by the circuit course faculty. The goal of the panel is to present to the participants a well-organized discussion of the current method of diagnosing and treating a patient in shock. The panel discussion is quite informal with panel members answering questions from participants whenever they are asked. Because spontaneity is encouraged, the panel discussion lasts 2 to 3 hours.

In addition to the shock circuit program, the University of Oregon Medical School Division of Continuing Medical Education has also presented an “infectious disease” course and an “acute myocardial infarction” course.

This type of continuing education

program has a number of unique features. First, the curriculum can be adjusted and expanded to meet observed needs of students. The faculty planning circuit programs first define their teaching objectives. The objectives describe the skills and knowledge that are necessary to make the diagnosis and provide the proper care for patients with the disease being discussed.

During the case discussion period, the participants’ knowledge gaps relating to the teaching objectives are noted by the faculty discussion leaders. The faculty then adjusts the panel discussion to meet the observed group needs. For example, during the “acute myocardial infarction” circuit course, in a predominantly general practitioner community, more emphasis was placed on the ECG diagnosis of specific arrhythmias than was necessary at the next circuit stop in a predominantly specialist community. In the latter community, more emphasis was placed on a discussion of basic cardiopulmonary pathophysiology.

As faculty listen to participating physicians discuss a case, they are able to suggest other courses or programs that will help meet specific needs of individuals attending the course. For example, during the “acute myocardial infarction” program several physicians were identified who had a limited ability to interpret ECG’s. These physicians were urged to take an ECG programmed learning course available through the University of

Oregon Medical School Division of Continuing Medical Education. In addition, some physicians attending the “acute myocardial infarction” program were interested in learning how to insert a transvenous pacemaker. They were offered an opportunity to do this at the University of Oregon Medical School or the St. Vincent Hospital in Portland, Oreg.

The need for continuing community postgraduate efforts during the intervals between circuit stops will be emphasized. The local course coordinator will be urged to organize and develop journal clubs and other self-study programs for the community.

One of the greatest advantages of the case discussion format is providing an opportunity for interaction between the faculty and the students so that specific needs for continuing education can be accurately determined. Three basic teaching concepts are used: The teaching method employed should be appropriate to the knowledge or skill being taught; learning is more effective if the learner is an active participant; and learning is more effective if key points are repeated and emphasized.

The case discussion or presentation places the learner in a realistic practice situation. Course participants discuss patients as they present in the hospital or office and follow the sequence of steps in diagnosis and management that provide the best care.

To increase the effectiveness of the case presentation, a request is

being made to make video tapes which picture the patient in various stages of his illness. In addition, the video tape will be used to display patient ECG's, X-rays, cardiac catheterizations, angiographs and highlights of surgery or other types of care given him.

Student participation is encouraged in the case discussion groups. As physicians discuss cases, they become interested in obtaining answers to questions they themselves have raised, thus becoming actively involved in the learning process. They are able to recognize their own knowledge deficits and are motivated to obtain more information to fill these gaps during the panel discussion.

Important information is reiterated during the lectures, small group discussions, panel discussions and in xeroxed reprints given to course participants. For example, in the shock course, the use of central venous pressure monitors was discussed in a lecture, the case discussion, the panel and by a journal article entitled "Central Venous Pressure in Optimal Blood Volume Maintenance" by John N. Wilson, et al., *Archives of Surgery*, 1962.

One of the biggest problems in the operation of an extensive circuit program, such as the one proposed, is having enough faculty to teach the program. The Oregon Regional Medical Program circuit proposal will allow the University of Oregon Medical School director of continuing medical education to produce

video tapes of selected portions of circuit courses in an effort to optimally utilize faculty time. For example, it is feasible to video tape the 20-minute lectures and the panel discussion. A video-assisted circuit program will then be presented with the help of physicians in the community trained to lead the discussion groups. One faculty member will accompany the video tapes and be in charge of introducing the program. After watching the two video tape lectures, the physicians will break into groups for the case discussion. The faculty member will rotate from group to group, stimulating questions and observing knowledge gaps.

Following the case discussion, the groups will reconvene to hear a video tape of the panel discussion. The faculty member will stop the tape when necessary to answer questions and emphasize points that clarify observed knowledge deficits.

The effectiveness of this type of video-assisted circuit program is unknown. However, it is imperative that it be tried and evaluated because, if effective, such circuits would be helpful in optimally utilizing faculty time, thus permitting expansion of the program.

One method to be used in evaluating the effectiveness of the heart, cancer, stroke circuit courses will be to use questionnaires devised to measure the effectiveness of the circuit programs in altering the physicians practice habits so that care given to patients with heart disease, cancer,

stroke and related diseases will be improved. It is important that teaching objectives mentioned previously be stated in terms of measurable behavior expected from the learner at the conclusion of the learning experience.

For example, an attempt was made to evaluate changes in practice habits of physicians attending the shock course. Three course objectives were chosen for measurement:

1. Physicians attending the shock circuit program would subsequently use central venous pressure monitors as one of the useful parameters in determining the rate and volume of fluids administered to patients in shock.

2. Physicians attending the shock circuit course would subsequently use more of vasodilator-type drugs such as isuprel and wyamine instead of vasoconstrictor drugs such as levo-phed, aramine and neosynephrine.

3. Physicians attending the shock circuit course would subsequently read more than one-half of the reprints distributed during the program.

In order to determine if these objectives were achieved, a questionnaire was given to participating physicians 6 months after attending the shock program. A sample of this questionnaire is enclosed in the shock packet given to you. The data collected was of considerable interest. Forty-seven physicians attended the program. Forty-four questionnaires were returned. Of the 44 physicians returning the questionnaires, 19

treated patients in shock during the 6-month interval following the course. There are approximately two cases of shock treated per physician responding.

Of the 19 physicians who treated patients in shock, 11 used central venous pressure monitors. This was particularly significant since only one physician used central venous monitoring before attending the course, eight physicians did not use central venous pressure monitors.

It was evident that central venous pressure monitoring was not used in some instances because the physicians were not sure of the technique to be used to insert the catheter. Subsequently, the faculty made substantial changes in the way central venous pressure monitoring techniques were demonstrated. Data related to the effectiveness of these new teaching methods is currently being collected.

Of the 11 physicians who employed central venous pressure monitoring, 10 indicated that it was beneficial and one indicated that it did not work. Some typical comments relating to its usefulness were: "good help," "valuable in surgical blood loss," "One lady is alive today because of your visit." A negative comment was, "A nurse let the catheter clog." As a result of this last response, the faculty decided a combined program involving both nurses and doctors might be indicated in the future to be sure that nurses responsible for maintaining function of the monitors were trained to do so.

Fourteen out of 19 physicians used vasoconstrictors or vasodilators to treat patients in shock. It was of interest the four physicians continued to use vasoconstrictors. Three used vasodilators and six physicians used both. These results, while not too encouraging, reflect a significant change since all physicians were using vasoconstrictors to treat patients in shock prior to the program.

The most encouraging results of the shock circuit course were that 43 out of 44 physicians read some of the reprints that were given to them, one physician did not answer the question. Thirty-eight read more than half and 23 read all the reprints. It was rewarding to note that 29 out of 44 also read other reference material relating to shock.

A most important and exciting aspect of the evaluation plan would be to determine which program format is most effective in accomplishing the teaching objectives. For example, in the shock circuit course, it would be extremely important to know if physicians used central venous pressure monitors, vasodilators and read reprints following a video-assisted circuit as frequently as they do following a live circuit. Any number of variables can and will be manipulated and evaluated using this model.

I have presented a brief description of the Oregon Regional Medical Program circuit course proposal. A unique format is being employed which allows for a curriculum that

can be adjusted to meet observed needs of participating students. The faculty teaching these programs will be able to reliably determine the needs for other types of continuing education programs which become obvious when they interact with well-motivated students during the case discussion.

The circuit course programs utilize three basic concepts of learning: Participation, reinforcement, and the use of teaching methods appropriate to the knowledge or skill being taught.

It is anticipated that by encouraging physician participation in a well structured course, video taped portions of the program can be used which will allow optimal utilization of the faculty.

The circuit program will be evaluated by using questionnaires designed to measure changes in practice habits which result in improved care given to patients with heart disease, cancer, stroke, and related diseases.

26

THE INFORMATION AND EDUCATION RESOURCE SUPPORT UNIT

JOHN N. LEIN, M.D.

Director, Continuing Medical Education
Washington-Alaska Regional Medical Program

*There are strange things done in
the midnight sun by the men who
moil for gold.*

*The arctic trails have their secret tales
that would make your blood run
cold.*

*The northern lights have seen queer
sights, but the queerest they ever
did see*

*Was the night on the marge of Lake
Lebarge when we created RMP.*

The Washington/Alaska region, the largest in the United States, extends from the remote community of Point Barrow, well above the Arctic Circle, to the town of Vancouver, Wash., some 3,000 air miles to the south; its population is widely scattered among the isolated towns and villages of the coast and coastal islands. Communities in eastern Washington are separated by mountain ranges and vast expanses of wheat and range land.

This land area covering nearly 700,000 square miles or roughly one-fifth the total land area of the United States has only three counties with a population concentrated enough to support a thoroughly equipped modern medical center.

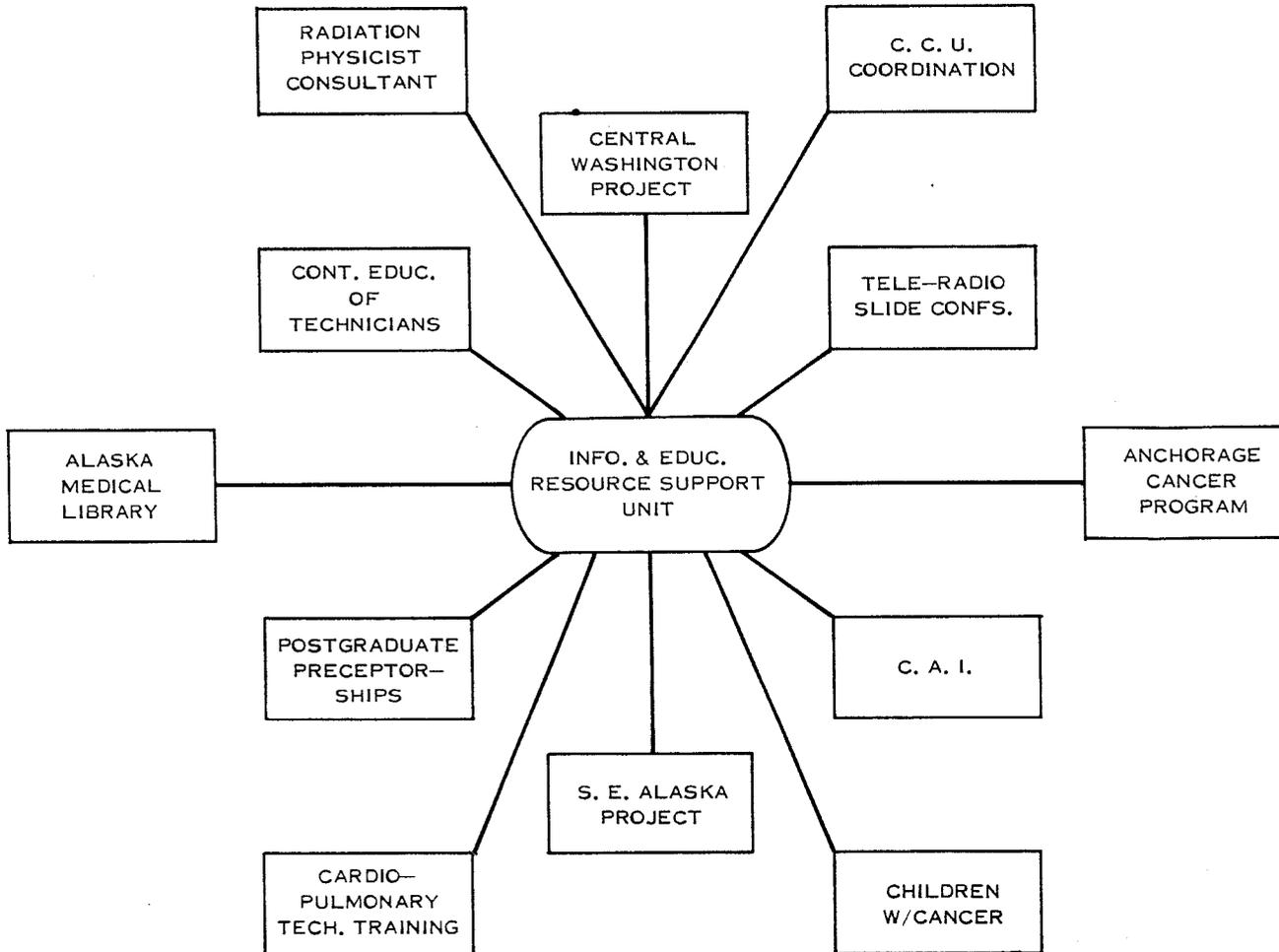
Alaska, over twice the size of Texas, has only 16,000 miles of paved roads; Texas has 196,000. The westernmost part lies four time zones west of Seattle. When patients are referred to Seattle from Anchorage, they fly farther than Dr. DeBakey flies from Houston to Bethesda, Md. It is almost as far from Seattle to Point Barrow as from New York to Los Angeles.

The State of Alaska is a series of isolated communities largely unconnected except by air and water transportation; southeast coastal towns are served frequently by the Alaska ferry system. Air service, due to fog, rain and icy conditions is sporadic with the exception of a jet service between Seattle, Sitka, Juneau, Anchorage, and Fairbanks. We are always reminded of the sign in the Sitka airport which reads something like this: "Attention all pilots: The clouds in this area contain over 95 percent rock."

If the State of Alaska were superimposed over the other 48 States of the continental United States, the Panhandle would extend into the Atlantic Ocean off Charleston, S.C.; the northernmost point of land would lie in Canada, and the southern tip of the Aleutian Islands would lie in the Pacific off San Diego, Calif.

CHART 1

INFORMATION AND EDUCATION RESOURCE SUPPORT UNIT RELATIONSHIPS



Of the 245 physicians in Alaska, 80 live in Anchorage. Juneau, the capitol and second largest city, has 10. Four hundred four towns have no medical service at all.

Of the 41 treatment institutions the largest private care facility is the 156-bed hospital at Anchorage; the smallest at Glen Allen has three beds.

There is no medical library in all of Alaska.

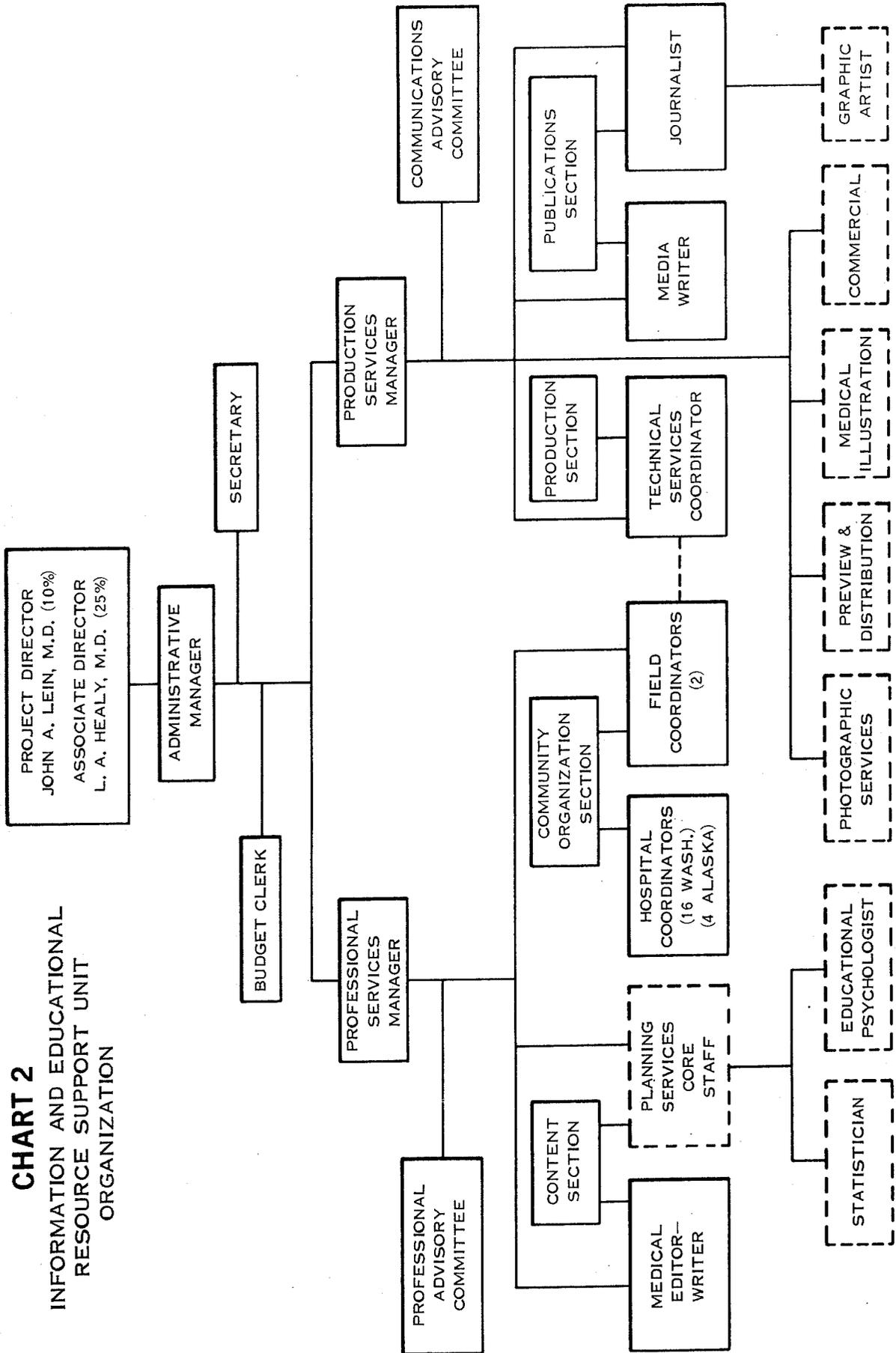
Medical society meetings and clinical seminars are held infrequently and are poorly attended because of transportation.

Of the 3,000 doctors practicing in the State of Washington, over half are concentrated in the Seattle area. This leaves rural physicians in Washington as well as Alaska overworked and with little time to attend meetings which they complain do not deal with practical problems. All subscribe to medical journals, but in the words of Dr. Stanley Jones, the only physician caring for 1,000 people in Haines, Alaska:

"Most of the articles published do not apply to our problems and we don't have time to read. We need someone to check the literature for us, tell us what we should read, or better yet, send us pertinent reprints."

This lack of communication is often the reason a rural physician abandons a remote community. The University of Washington and Staff members of the medical centers in Seattle and Spokane have been aware of the desperate needs of these isolated doctors and have made sporadic attempts to

CHART 2
INFORMATION AND EDUCATIONAL
RESOURCE SUPPORT UNIT
ORGANIZATION



help. But for all practical purposes, the great distances and uncertain travel conditions are too defeating.

There was little question that there was a need to create a method of sustained delivery of medical information to physicians and other health personnel who could not be dislocated from their places of practice. A necessary condition for such continuing education was that the process be both accessible and convenient to the participant.

With all of this in mind, the Information and Education Resource Support Unit was created to provide regional medical program services to meet these needs.

Our various projects would then use this unit for the production and distribution of information by tele-lecture, two-way radio, slides, reprints, videotapes and whatever other visual materials which may help achieve their goals. This unit is unique in that it produces and coordinates all educational materials for all projects in our two-State region.

It will give medical communities skilled assistance in identification of educational needs and develop programs to meet these needs.

It will create and develop content, audiovisual materials and printed information consistent with goals of the various projects.

It will create a distribution system for this information which can penetrate the vast reaches of the Washington/Alaska region.

We believe that consistent quality can be attained if all educational materials are subject to review and approval of the unit's professional advisory and communication production advisory committees. We anticipate that greater efficiency will be achieved and considerable money will be saved by producing all programs and materials in one central unit rather than permitting each project director to attempt to develop his own facilities. We also anticipate that successful efforts within one project can immediately be fed into other operational projects. Once content is established for a given subject, producers in the central unit can program it for several media at the same time.

Thus reinforcement, so valuable to the learning process, will be achieved. Those fortunate enough to participate in the occasional personal visitation of the teacher or to participate in the preceptorship programs will, through audiovisual programs, receive additional benefits.

The organizational chart shows how the unit will function. The people grouped on the left hand side of the chart will be establishing content. They will work under the supervision of a professional services manager who will be a physician with experience in continuing education and training in evaluation techniques.

He will work directly with physicians in local medical communities to help them identify their educational goals. Working with him will be hos-

pital and field coordinators who will not only see that the programs are properly presented but will also assist in evaluation.

The professional advisory committee, a group of medical specialists, will work with the medical editor reviewing literature and suggesting reprints for distribution. They will approve the content of all continuing medical education materials before they are produced.

The right hand side of the chart is the production side. Once educational goals are established and content identified, these people have the responsibility of putting it into an acceptable format. We have stipulated that production services can be sub-contracted. By doing so we take advantage of the best commercial and educational facilities available. We're well aware that sizable amounts of private and public funds have been spent in medical television and film production, sometimes without spectacular success.

If this approach in the Washington/Alaska region is effective, it will be due to four principals:

1. The learner will be involved in establishing educational objectives for all programs.

2. This establishment of objectives will permit an early and a constant evaluation thereby giving us a chance to alter methods as necessary.

3. The materials will be adapted to fit viewing requirements of the private practitioner. Short, single-concept presentations will be available

for individual as well as group viewing.

4. Established professional production techniques will be utilized.

In summary then, the Information and Education Resource Support Unit is designed to:

1. Coordinate all educational services of the Washington/Alaska region.

2. Produce all information, education and promotion materials for our individual Program projects. This will assure acceptable program quality and avoid costly duplication.

3. Give the learner opportunities to identify his own educational goals and to direct the efforts which will meet these needs.

4. Create, through modern communications technology, a distribution network convenient to the participant irrespective of his location.

27

UNUSUAL PROGRAM FOR CONTINUING EDUCATION OF PHYSICIANS AT GRASSROOTS LEVEL

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West Virginia Regional Medical Program

There is hardly any educational program that is entirely unusual today. Each component of the local continuing educational activities for physicians living in the area covered by the West Virginia Regional Medical Program has undoubtedly been utilized in some form or the other elsewhere. However, West Virginia has a peculiar distribution of population, physicians and medical care facilities which calls for local programs of continuing professional education tailored to meet these circumstances and therefore unusual in their total configuration.

The regional boundaries of the West Virginia Regional Medical Program constitute the boundaries of the State of West Virginia. Two-thirds of the population of West Virginia live in rural areas, unlike most of the States of the Nation. By rural areas

here is meant towns of less than 2,500 population. Physicians also tend to be scattered in rural areas. Another way of expressing this situation is to call attention to the fact that in 1966 54 percent of the occupied hospital beds were in hospitals of less than 50 beds.

Some other States are predominantly rural but West Virginia has another peculiarity in that it lies entirely within the Appalachia Mountains. It is the only state where each of its counties is included under the Appalachia Act. Its appellation of "The Mountain State" is well taken. Transportation from point to point is characteristically over winding, hilly roads.

We are attempting to have a program of continuing education in the areas of heart, cancer, stroke and related diseases which is brought to the local physicians near their homes and places of practice, which is to a large extent determined by them and in which they become personally involved. Before starting the program of itinerant seminars around the State, meetings were held with behavioral scientists of the West Virginia University to discuss motivation of the practicing physicians as to their needs and desires for postgraduate education and what would attract them to attend and participate in courses. Specific items along this line will be presented as we proceed today, but it needs to be stated here that the key word is "involvement"—involvement of the local physicians in the whole program from the start of

its planning, through the program itself and into the followup.

The program which has been evolved is a joint program in accordance with the policy of the Regional Medical Program Act to foster cooperative arrangements for activities developed under the act. Besides the staff of the regional medical program, other organizations involved in arranging and conducting these programs include: the Committee on Education and Hospitals of the West Virginia State Medical Association, local major hospitals, local physician groups, the West Virginia University Medical Center and the Center for Appalachian Studies and Development of the University.

Continuing education for nurses, dentists and hospital administrators has not been neglected by our RMP and other health disciplines may also be included in the future, but this paper focuses on the area where we have concentrated most of our time so far—the local sessions to aid physicians.

The educational sessions for physicians which we have developed as itinerant seminars have emerged into full-day programs on one aspect of heart, cancer, or stroke. Sessions are being conducted in each of the eight areas of the State as established by the Committee on Education and Hospitals of the State medical association. Generally a major hospital in each region is utilized as a place for holding the session, as these hospitals are places where most physicians are ac-

customed to congregate and usually have facilities for accommodating such meetings.

A preliminary planning session is held initially where the area coordinator of the committee on education and hospitals arranges to have representative local physicians present to meet with the regional medical program director and information officer as well as with local staff of the extension division of the Appalachian center. At these meetings, the content of the program, its length, its format, and the time and place for holding it are determined.

In order to stimulate attendance and have the program particularly useful in day-by-day practice, there has been general agreement that these educational sessions should not be a series of lectures but should always include local physician participation. A program exclusively composed of lectures seems to have two major drawbacks: First, no matter how excellent the lectures are, there is apt to be a general feeling that the lecturers are talking down to their audience from a high pedestal and this approach does not generally bring about good rapport; and secondly, busy people (and some who are not so busy) have more difficulty with their attention span during a number of hours of listening to lectures than when they are actively participating and attempting to consider the application of the subject matter to their own daily needs. The Expert Committee on Health Education of the

Public of the World Health Organization in 1954 pointed out the advantages of the two-way, or Socratic, method over the one-way or traditionally didactic method. The two-way method is based on the belief that people have interests, feelings, information, and motivations which are basic to their future learning and that these conditions must be carefully taken into consideration in attempting any further education. The free discussion allows for utilization of this Socratic approach with opportunity for approaching the subject from the viewpoints of all those present and participating.

An unusually helpful resource for developing these programs has been the West Virginia Center for Appalachian Studies and Development. This center has some 200 persons working full time around the State in extension work and continuing education. These persons are supervised by six regional directors of the extension division of the center. The objectives of the center include: "Be a vehicle for generating continuous statewide planning, goal setting, and intensive discussion. Organize and encourage continuing life-long education as essential to life experiences. Encourage development of various arrangements within the university so that the academic and public concern go hand in hand."

As far as the regional medical program is able to influence the content of the seminars, we are attempting to have programs directed to-

wards major essentials of early case finding, proper treatment, and rehabilitation for the significant areas where widespread application is lagging beyond scientific knowledge. We are also attempting to stress to the practicing physicians their responsibility for health education of their patients as a regular part of their daily practice of medicine.

I can speak more definitely about planning for these sessions than about the actual sessions since only one of the continuing education seminars has been held to date—that one in Parkersburg on Sunday, December 3, on "Cancer of the Large Bowel, Blood, and Breast." One on stroke will be held in Charleston on January 28 and others are in various planning stages at hospital centers in the other six regions.

Following the initial planning sessions held locally, a series of letters of invitation, including registration forms, are sent to all of the physicians in the area, including doctors of osteopathy. These letters go from two well-known local physicians, one of them the area coordinator, and from the director of the regional medical program. Shortly before the seminar is held, extension service personnel from the Appalachian center personally visit each physician who has not yet registered and present him with a copy of the printed program and a registration blank along with an explanation of what the program is attempting to accomplish and how it might be helpful to his practice. Ex-

ension personnel also, in the two programs already completed or about to be completed, have arranged widespread publicity through newspaper, television and radio announcements.

So far it has been agreed to have unstructured panel discussions take up half of the program which active audience participation as well as give-and-take among panel members.

Attempts are being made to have an interdisciplinary approach spotlighted at the sessions. This has been accomplished by having a nurse on the panels, a psychiatrist on the cancer panel, and a physical therapist on the stroke panel. Another feature of the program is to have one of the specialists remain in the area for an extra day or two to visit the local hospitals as a roving consultant on a doctor-to-doctor basis.

Illustrative patients, movie and slide presentations are utilized from time to time for a change of pace. The same reason may be given for the occasional use of an out-of-State specialist on the program. Most of the resource people come from the WVU medical center but always at least one local person is a featured participant.

Upon the advice of our behavioral scientists, the physicians are charged a small fee for attendance at the seminars. The funds collected do not pay the entire cost of the program, but perhaps help to make it more attractive than one presented without charge. So far the American Academy of General Practice has ap-

proved of credit for its members attending these seminars.

In attempting to evaluate the effectiveness of these itinerant post-graduate seminars, two methods of approach are being used. An evaluation form is distributed towards the end of the session for those in attendance to complete; and several months after the session, field representatives from the Appalachian Center visit the physicians who attended the seminar to attempt to ascertain whether what was learned in the session has been useful to them in their daily practice.

Finally, let me present to you some of the highlights from compilation of the evaluation forms collected at the end of the first itinerant seminar held at St. Joseph's Hospital, Parkersburg, on "Cancer of the Large Bowel, Blood, and Breast."

Out of a possible 129 practicing physicians in the nine-county area, 52 registered for the seminar and 48 attended. Of those attending, 32 completed the evaluation form; 19 of these were general practitioners and 13 specialists. All but 4 of them live in towns of less than 50,000 population.

The 5-hour length of the program was declared to be "just right" by all except one.

Sunday was by far the most popular day for having such a seminar (29 out of 32).

Just half of those completing the questionnaire had attended other

postgraduate programs on the subject.

In answer to a question as to desire to attend future seminars in this field, no one stated that he would not care to do so.

Fourteen out of thirty-two favored having a roving consultant stay for a few days after the meeting.

All approved of a small registration fee (\$5 in this instance).

Thirteen rated the seminar as excellent; 16—good; 2—average; 1—fair; and none poor.

It will take some time to determine whether these seminars are popular and effective throughout the State both initially and on a continuing basis. It is contemplated that they will be held continuously for an indefinite period of time. From the experience of one which has been held and from the preregistration of the second one, it would seem that they may be popular, particularly among general practitioners. Measuring their long-term effectiveness becomes more difficult, but we will continue to seek ways of effectuating such measurement.

28

COMMUNITY-CENTERED CONTINUING MEDICAL EDUCATION

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Program Coordinator
Intermountain Regional Medical Program

Enormous efforts are being invested in continuing medical education, yet there is a general impression that what is being done has not been very effective. This, of course, is debatable since there is little objective information which either supports or refutes this impression. If we look only at the number of practitioners engaged in active pursuit of their education, however, we cannot claim much success. Possibly we have been in error in concentrating educational activities in large centers isolated and unaware of the physician's day-to-day problems. That this is true is just an impression, but it is reasonable, especially when you realize that most programs are designed by the teacher for large heterogeneous groups of practitioners without knowledge of what their needs are. In effect, this is providing an answer to cover many questions without even knowing the questions.

Our premise, in the IRMP, is that to be effective, continuing medical education must be relevant to specific needs of each individual practitioner and our greatest contribution can be made in providing him with resources in his own community to guide and stimulate his efforts to learn from clinical experience with his own patients. There is nothing revolutionary or even new about what I am saying, but the RMP has allowed us to move from the conceptual stage into action.

What we are doing, and the approach we are using in the Intermountain region can be outlined in three parts:

1. Self-assessment and identification of needs.

1.1 Utah survey of physician's needs conducted in collaboration with the AMA department of postgraduate education.

1.2 PAS-MAP are used in nine hospitals in the region. These systems are applicable only to hospitalized patients, but provide inexpensive and immediate analysis of certain aspects of patient care, e.g., procedures and treatments. Our efforts have been directed toward assisting those hospitals with the systems to use the audit as the stimulus for educational programs and to demonstrate to other hospitals, the advantages of such approaches to medical education.

1.3 Problem-oriented patient records are a systematic way of obtaining and recording information on patients in any care setting, e.g., hospital, clinic, office, etc., so that it can

be audited manually. This system provides a table of contents and categorizes the clinical information according to specific problems presented by the patient. The most important part of the system is the willingness of those who use it to have their charts audited for educational needs. Since so many of the future practitioners in the Intermountain region will be graduates of the medical school or training programs in the university and affiliated hospitals, the IRMP has succeeded in getting the clinical department heads in the medical school and directors of training programs to implement the system and philosophy of problem-oriented patient records as developed by Dr. Lawrence L. Weed of Cleveland. In addition, one community hospital in Ogden (35 miles from Salt Lake City) is working toward implementing the same system for its entire staff within 1 year.

2. Resources in major community hospitals committed to providing professional health education.

2.1 Conference room equipped with:

	<i>Established</i>
Usual teaching aids.....	18
Audio playback.....	10
Television playback facilities.....	4
2.2 Two-way radio connection with the university medical center	32
2.3 Medical library and exchange system with university resources	

2.4 Audited medical records system, integrated with educational programs (PASMAL)----- 9

2.5 Medical education coordination (MEC) or core faculty--- 5

2.6 Specific training programs:
Acute coronary care----- 5

Cardiopulmonary resuscitation-- 6

Respiratory therapy----- 3

Fellowship in clinical cardiology- 3

3. Resources available at the university medical center and affiliated hospitals through the auspices of the IRMP.

3.1 Consultants for patient problems and laboratory services.

3.2 Consultants for educational projects and individual practitioner needs.

3.3 Specialized laboratory services, e.g., hormone determinations which are unavailable in clinical laboratories, and directed education.

3.4 Cadre of teaching faculty to participate in community hospital educational programs upon request by the MEC.

3.5 Dial-access system for information on specific subjects in clinical medicine.

3.6 Loan service and distribution system for library materials, audio and television tapes, etc.

3.7 Inservice training programs for physicians and nurses, in the university medical center and affiliated hospitals.

3.71 Acute coronary care.

3.72 Cardiopulmonary resuscitation.

3.73 Respiratory therapy.
3.74 Clinical fellowships in heart disease, cancer, and stroke.

It is obviously too early to evaluate the impact of the approach we are using. However, we are involving large numbers of practitioners with whom the educational institutions and medical centers have had no previous contact. We have already seen a change in interest toward careers for at least a few medical students and house staff. Both groups have requested counsel as to a future role for them in the program. There are few, if any, medical students or house staff who are unfamiliar with RMP and the concepts embodied in Public Law 89-239. Eight medical students spent their summer fellowship last year working in community hospitals collecting data for our regional tumor registry. Two physicians, who completed their specialty training last July and were committed to move to other parts of the country, remained to become teachers in the IRMP. Three more will make a similar change this July. Interest has developed in clinical research among practitioners. Four projects dealing with systems for delivery of patient care were initiated in the past year by practitioners in collaboration with the IRMP.

Hopefully, the interaction between the practicing and academic communities being created by the IRMP which initially focuses on physicians, nurses, and technicians will pro-

mote the extension of the philosophy and concepts outlined in this report to all health care professionals. The conviction that an effective public information and public relations program depends on effective continuing education for the health professionals has prompted us to have the same personnel to engage in both.

In summary, the Intermountain Regional Medical Program has initiated and will continue to coordinate a program in continuing medical education which is practitioner and problem oriented. We have moved the educational resources closer to the practitioner and developed some capabilities to assess and respond to the needs of individuals. Although it is too early to determine the value of the program presented in this report, we are encouraged by the interests and attitudes expressed by both practicing and academic physicians. How are we evaluating our efforts? For the present we are tabulating the number and how they are engaged with us voluntarily in pursuit of their education.

SURVEY OF CONTINUING EDUCATION OF THE PHYSICIANS IN METROPOLITAN WASHINGTON

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Most regions have considered continuing medical education and training as an appropriate and important activity of regional medical programs. This activity was specifically listed in the purposes of the regional medical programs in Public Law 89-239. Its importance has been emphasized by the staff of the Division of Regional Medical Programs, NIH, in its guidelines, publications, and conferences.

The Metropolitan Washington Region, like many other regions, included plans for a survey of continu-

ing education of physicians as one of its initial activities.

Knowing that other regions have similar interests, it is considered helpful at this time to describe our experiences, pointing out our problems, our mistakes and failures so that others may profit by them.

A decision was made in February 1967 to conduct a survey of the existing state of continuing education of physicians in the Metropolitan Washington Region. The objectives of the survey as conceived at that time were as follows:

1. Obtain a summary of the present status of continuing education and training in the region.
2. Develop the characteristics of the individual physician as to his continuing education and training during the immediate past 10-year period.
3. Identify the existing pattern or patterns of continuing education for the region.
4. Determine what techniques are presently used and preferred in the region.
5. Identify factors which inhibit the effectiveness of present programs.
6. Identify which physician or groups of physicians are most in need of continuing education and training.
7. Identify special areas in which deficiencies exist and areas requiring strengthening.

While in Chicago in early February, a visit was made to the office of the American Medical Association. After reviewing the material available in their physician listings, arrange-

ments were made to purchase a copy of their master listings from Fisher-Stevens, Inc., Clifton, N.J.

This provided the basic information needed for all physicians registered in the AMA files for City of Washington, D.C., and the suburban counties of Maryland and Virginia which comprise the Metropolitan Washington Region.

The material in the AMA listings was utilized as follows. For identification and mailing purposes we utilized the following coded items in addition to the name of the physician and his current address.

1. The ZIP code.
2. The medical education number to specifically identify the physician, his medical school and year of graduation. The date of graduation gave us an approximate length of time in practice as well as the approximate age of the physician.
3. The special code which provided his primary and secondary specialties or interest.

For identification of the physicians' professional activities at the present time, we utilized the AMA's classification of professional activities (CPA) codes but omitted the third subdivision "C" or "sources of professional income." We likewise omitted from our listing (selected out by the computer) portions of the subdivisions A, B, and D. In subdivision A, we omitted "5. fellows or other graduate trainees." In subdivision B, we omitted "03—interns," "04—residents or fellow," "11—retired" and

"12—not in practice." In subdivision D we omitted the commissioned medical officers in the Federal services, specifically omitting the following items: "05—Air Force," "06—Army," "07—Navy," and "08—USPHS."

When corrected to fit our needs, we had a coded computer listing of all physicians in the Metropolitan Washington Region except interns, residents, fellows, trainees, physicians commissioned in the four Federal services and those retired or not in the practice of medicine. However, we included those physicians in the various branches of the Federal services who are serving in a civilian status and those who are full-time members of faculties of the medical schools, staffs of hospitals, medical institutions, etc. The master listing used consisted of 4,186 physicians.* When broken down by nature of their professional medical activities, there were 3,374 who were listed as in direct care of patients, either in private practice or institutions, and 750 physicians who were listed as in related medical activities or nonmedical activities. Our interest is primarily in the 3,374 physicians listed as in "direct care of patients."

An inventory form was developed which was designed to meet the objectives as outlined earlier. A sample form was prepared and distributed to a small representative sample of the

*Sixty-two forms were returned not completed, stating physician was not in practice or had deceased.

physician population along with a letter requesting that they complete the form, estimating the time it took them to complete it, enumerate the difficulties they encountered and to give us recommendations as how to improve the form. Excellent constructive criticisms and recommendations were received from these physicians which were included in the final form. In retrospect, the sample was probably too small and probably not representative of the region.

The final form consists of two book pages or eight individual pages. A sample copy of the form is appended. The front page was so designed that the top one-third just beneath the title was left blank for placement of the address tape. When the form was correctly folded, and placed in a window envelope, the mailing address showed through the window of the envelope. The remainder of the form was devoted to 13 separate items. The last three items related to special aspects of prevention, diagnosis, and therapy of heart disease, cancer, and stroke.

Item 1—*Hospital staff and medical school faculty appointments held during the past 10 years.* This information, if supplied, provided a built-in evaluation of continuing medical education. A physician, having an active staff appointment at a good accredited hospital has a requirement to attend professional staff conferences and often, to participate in them. On the other hand, the physician having only courtesy privileges, rarely attends

such professional activities and often their appointments are limited to a courtesy staff appointment "because it is known that they do not keep up professionally." The three medical schools in the region have somewhat different patterns of faculty appointments but in general, consist of a small full-time faculty, a larger part-time faculty and a large faculty of clinical professors, assistant and associate professors, instructors, etc., many of whom have minimal contact with the school faculty and its educational activities. Hence, it was necessary to define the type of hospital staff appointment and the type of medical school faculty appointment. Difficulty was experienced by many physicians in completing the information listed under 1-b. where we requested that as a member of the faculty, he give the percentage of time engaged in respective areas of teaching, research or private practice. We should have more appropriately listed the items as teaching, research and patient care.

Items 2 and 3—*How often did you engage in each of the following types of professional activities? No. 2 was for the past year and No. 3 was for a period of 5 years previous.* The types of professional activities listed are those known to be attended most frequently in the Metropolitan Washington Region. A comparison of information given in items 2 and 3 should give an idea as to the progress or lack of progress of the individual physician in his program of continuing education. Social professional societies are

included in this item. While not limited to the Washington area, they are unusual in the total number present, their competitive membership and their built-in demands for attendance. In this respect they reduce participation in other professional activities which may be more educational. In general, these items were completed appropriately by those responding. We were surprised to find many physicians in active care of patients who indicated that they attended none of these activities.

Item 4—*List any national and/or international professional meeting, conferences, seminars, etc., which you attended or in which you participated.* (Spaces were provided for entries for a 10-year period (1957-66.)). This item provided more difficulties and was a cause for rejection of participation by many physicians. For those who had not attended any during the 10-year period, it was embarrassing to them to reply "none." For those who attended or participated in numerous, they found it difficult to recall the information or it took too much time to list them on the form. We later modified our instructions to simply indicate the approximate number of meetings they attended or participated in during a given year if it was more than one. We had intended to code each activity in order to identify the popular meeting for each specialty interest and those of a general interest.

Item 5—*List formal courses in medical education attended or par-*

ticipated in during the past 10 years (1 day or more duration). This was either not well understood or carelessly completed. We should have used the term "postgraduate courses" rather than "medical education." Many simply repeated the same information given under item 4 or that which should have been listed under item 4. Again, we were surprised to see the number who indicated "none."

Item 6—*List visits to a center or institution for the purpose of learning a new technique in diagnosis or therapy during the past 10 years.* This item was as estimated checked off as "none" by the majority of respondents. Those who listed courses gave the identifying information.

Item 7—*List the medical journals read regularly.* A box was also provided to check if the answer was "none." Respondents in general took time to list the journals, usually in legible identifiable form or by abbreviations. Many boastfully indicated, "too numerous to list" and a few indicated "none."

Item 8—*Which of the following audiovisual aids have you found helpful in your continuing educational training?* Four specific items were listed with a box to be checked, a fifth item "others" and a note to "state" was included and a check box for "none" was added. Most respondents completed this, many listing items under "others." The information received is considered helpful in future planning.

Item 9—*What type or types of local*

programs do you believe would be helpful to you personally? Again check boxes were provided for six specific items, one additional provided for "others" and a note "to state" and a box to check if "none." We anticipated that the information received here will be helpful in our plans for future programs of continuing education. A preliminary review of the completed forms indicate that the majority believe that "hospital staff conferences" and "formal courses" would be most helpful. If this is representative of the region, this means that our efforts should be directed toward improvement of existing staff conferences and the development of formal courses in graduate medical education.

Item 10—*Please check the statement you consider most appropriate re continuing education.* A total of eight statements was included. These represent the obstacles most often quoted as interfering with participation in educational activities. Most respondents took time to check specific items which they considered most appropriate to their situation.

Items 11, 12, and 13—*These items were related specifically to heart disease, cancer, and stroke and were directed toward obtaining the physician's participation and interest in the prevention, diagnosis, and therapy of these diseases.* They were added as ancillary items to evaluate the existing interest in heart disease, cancer, and stroke early in the program as a base line for a similar survey at a

later date. It likewise provided us with a list of interested physicians available for committees, etc.

Realizing that in early 1967 few physicians in the region were knowledgeable as to the existence and purposes of the regional medical program—or its interest in continuing education—an effort was made to provide orientation of the physicians prior to mailing out the inventory forms.

In March 1967 an editorial entitled "Regional Medical Program of Metropolitan Washington" was published in the *Medical Annals of the District of Columbia*, a monthly publication with a circulation of 3,067, which includes all active and associate members of the Medical Society of the District of Columbia plus individual subscribers. In addition, copies of the reprints of this editorial were sent to the offices of the medical societies of the suburban counties to be included in the material mailed to their members.

A second editorial was prepared on the specific subject of "Continuing Medical Education and Training: A Function of the Regional Medical Program," and this was published in the May issue of the same journal, and by chance, it arrived on the desks of the physicians within a few days of the inventory form.

To provide immediate information at the time of receipt of the form, a letter was included in the envelope, addressed to the physician and signed by the coordinator—stating the pur-

pose of the survey and providing brief instructions for completing the form. Here, as in other instances we made mistakes which nullified to some extent our plans for orientation and stimulating of interest. In preparing this bulk of nearly 5,000 forms and letters for mailing, we arranged as previously described a procedure for placing an address label on the top of page 1. The forms were folded and stuffed in the envelopes by machine. This necessitated placing the letter and the return envelope behind the inventory form. When the secretary or physician opened the envelope, the letter was not immediately seen; consequently many never looked further—but considered it just another survey of which there were two others in the area about the same time, and promptly discarded the entire package. Likewise, we selected a blue envelope—on the recommendation of the Secretary of the Medical Society of the District of Columbia, who informed us that the physicians recognized the distinctive color as coming from the medical society. We found out later, that many secretaries did not make this distinction and actually considered the blue envelope as containing an "advertisement" and discarded it. A third mistake was that we did not send it as first-class mail. This would have caused it to receive better attention by all. If this system of processing and mailing is utilized, it is suggested that the top of the letter be used for the mailing label and that only the physicians

educational number be placed on the inventory form. This would have accomplished two purposes: (1) The letter would have been seen immediately on opening the envelope and therefore received more attention; and, (2) the absence of an identifying name on the form or a required signature would have encouraged greater physician participation, knowing that the material furnished would not be correlated with him by name.

By the end of May, only 15 percent of 4,186 physicians mailed the form had returned them. A quick inventory was made by specialty interest code and we decided to send a followup letter to all those previously mailed the form, encouraging those who had not completed and returned the form to do so immediately and inviting them to phone us if they had questions or desired to receive a new form or an initial form. It was here that we found that many secretaries or physicians had dumped the original material and that they had not seen the initial letter. Subsequently, we made by request a second mailing of 215 forms. Noting that the returns for the important group of 675 general practitioners in the region was only 16 percent—we embarked on a program of making a phone call to each general practitioner who had not returned the form. In making these phone calls it was learned how poorly oriented the physicians were to the program and much about their personal reactions to the program. These phone calls did succeed in raising the

compliance to 31 percent for this group.

In August an item was placed in the *Newsletter of the Medical Society of the District of Columbia* and a similar notice in the September issue of the *Medical Annals*, urging physicians to complete and return the forms. These last notices going out during summer vacation brought little response.

In October when we decided that we probably had received our maximum response—the tabulations showed a 32 percent overall response. A statistical analysis made of the respondents indicate that they represented a usable sample of the physician population.

A tabulation of some of the more important information is provided in *handout material* for those interested in specific type of information.

The completion of the inventory form by only one-third of the physicians in the region is not considered a satisfactory response. An analysis of the age spread and the percentage of various specialties responding, from a statistical standpoint, is such that the returns may be reasonably representative of the physician population of the region and therefore usable in our planning. However, a greater percentage of respondents would have been more informative and reliable.

In retrospect, numerous mistakes are recognized. The following suggestions are provided for other re-

gions who are planning similar surveys.

1. The surveys should not be instituted early in the program before the physicians of the region have been well oriented as to the nature and purpose of the regional medical programs. Our efforts to obtain orientation and education of the physician in the early months of the program were inadequate to stimulate them to a high rate of response. It would have been more successful if the survey was conducted during the second year.

2. The form used should be developed so as to obtain the desired information with the least effort and recall by the physician. In this respect, the form as developed by the Department of Postgraduate Programs, American Medical Association, "The Physician's Inventory of His Own Continuing Medical Education," is more appropriate in that most replies can be made by simply checking a box provided for a choice of several situations. We were not aware of this form at the time we developed our form. We made many mistakes in the development of our form, several of which have been de-

scribed. In general, it was too long and required physicians to resort to records or to recall, to complete items. Likewise, too many items required specific information to be written on the form.

3. The physician's name or signature should not have appeared on the form. The placement of the education code on the form as obtained from the AMA would have been sufficient to identify the physician. The absence of his name and readily identifiable information would have prompted many physicians to respond who otherwise may have been embarrassed by their deficiencies.

4. The inventory forms should not be distributed near or during the summer vacation period. They should be sent by first-class mail and the accompanying letter of instructions and orientation should be included in the mailing in such a manner that it will immediately gain the attention of and be identified by the physician or his secretarial staff.

5. The followup of nonrespondents should be immediate and vigorous; otherwise any initial interest of the physician is lost.

APPENDIX

REGIONAL MEDICAL PROGRAM

SURVEY OF STATUS OF CONTINUING EDUCATION AND TRAINING OF PHYSICIANS IN THE WASHINGTON METROPOLITAN REGION

1. Please list any hospital appointments held during the past 10 years starting with the most recent appointment.

a. Hospital appointments: (If none, check here).

(List type of appointment in the last column as one of the following: active, courtesy, staff officer, consultant, other (specify).)

Hospital	Dates of appointment		Type of appointment
	From	To	

b. Please list any medical school faculty appointments held during the past 10 years: (If none, check here).

Medical school	Dates of Appointment		Percent of time engaged in		
	From	To	Teaching	Research	Private Practice

(Continue on separate sheet if necessary—Please identify all items)

2. How often did you engage in each of the following types of professional activity during the past year?

Type of activity (meeting, conference)	Frequency				
	Weekly	Monthly	7-12 per year	1-6 per year	None
1. Hospital staff conferences					
2. Social professional societies					
3. Medical societies: (D.C.)					
(Md.)					
(Va.)					
4. Specialty (list)					
5. Heart Association, local					
6. Cancer societies, local					
7. Tumor board					
8. Others (list)					

(Go on to next page)

3. How often did you engage in each of the following types of professional activity 5 years ago?

Type of activity (meeting, conference)	Frequency				
	Weekly	Monthly	7-12 per year	1-6 per year	None
1. Hospital staff conferences.....					
2. Social professional societies.....					
3. Medical societies: (D.C.).....					
(Md.).....					
(Va.).....					
4. Specialty (list).....					
5. Heart Association, local.....					
6. Cancer societies, local.....					
7. Tumor board.....					
8. Others (list).....					

4. List any national and/or international professional meetings, conferences, seminars, etc. which you attended or in which you participated. (If none, no entry.)

Year	Conferences or meetings	Attended only	Participated (Presented paper, lecture, panel discussion, etc.)
1966			
1965			
1964			
1963			
1962			
1961			
1960			
1959			
1958			
1957			

(Go on to next page)

5. List formal courses in medical education, attended or participated during the past 10 years (1 day or more duration). (If none, check here)

Year	Course and duration	Attended	Participated
1966			
1965			
1964			
1963			
1962			
1961			
1960			
1959			
1958			
1957			

6. List visits to a center or institution for the purpose of learning a new technic in diagnosis or therapy during the past 10 years. (If none, check here)

Year	Institution	Duration

7. List the medical journals read regularly. (If none, check here)

8. Which of the following audiovisual aids have you found helpful in your continuing educational training?

- Audio tapes
- Moving pictures
- Television
- Demonstration units
- Other—state
- None

9. What type or types of local programs do you believe would be helpful to you personally?

- Formal courses
- Demonstration units
- Television programs to your hospital
- Visiting teaching consultants to your hospital
- Hospital staff conferences
- Participation in teaching rounds in hospitals
- Others—state
- None

10. Please check the statement you consider most appropriate regarding continuing education.

- I have no difficulty in participating in programs and should like to continue to participate.
- One or more of the factors below have prevented me from participating to the extent I desire.
 - Place of programs too distant or inconvenient.
 - Time of programs not satisfactory.
 - Attendance interferes with time committed to patient care.
 - Program not suited to my needs.
- I have not desired to attend.
- I have no plan or desire to participate in future.

11. What proportion of your activities are related to the diagnosis, treatment, or prevention of heart disease, cancer, or stroke?

a. Diagnosis, treatment:

	Cancer	Heart disease	Stroke
None.....			
Less than 10 percent.....			
10-25 percent.....			
25-50 percent.....			
Over 50 percent.....			

b. Prevention programs—see item No. 12

	Cancer	Heart disease	Stroke
None.....			
Less than 10 percent.....			
10-25 percent.....			
25-50 percent.....			
Over 50 percent.....			

If you participate, please check appropriate items in number 12.

(Go on to next page)

12. I include the following activities in my program of prevention of heart disease, strokes, and cancer:

- (a) Protect pregnant mothers against viral infections, avoid harmful drugs, unnecessary x-ray examinations, etc.
- (b) Treat all streptococcal infections with antibiotics promptly.
- (c) Provide prophylaxis against streptococcal infection to my young patients with previous rheumatic fever and rheumatic heart disease.
- (d) Provide prophylactic therapy to all patients susceptible to bacterial endocarditis when undergoing dental work, operative procedures, etc.
- (e) Evaluate and treat systemic hypertension early.
- (f) Annual health examinations for patients over ____ years of age. This includes the following specific examinations:
 - 1. ECG after age ____
 - 2. Serum lipids after age ____
- (g) Program for cancer detection after age ____ . This includes the following specific examinations:
 - 1. Breast examination
 - 2. Cervical smears (females)
 - 3. Protoscopic examination
- (h) Prompt evaluation of patients with persistent cough, weight loss, anemia, gastrointestinal bleeding, "little strokes", transient chest discomfort, and "indigestion."
- (i) Programs for weight control.
- (j) Programs for appropriate exercise.

13. I would be interested in assisting in continuing educational programs in Metropolitan Washington in:

- Heart disease
- Cancer
- Stroke
- Related diseases—name
- None of these

30a

APPROACHES TO EVALUATION OF A REGIONAL MEDICAL PROGRAM

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A review of the proceedings of the January 1967 conference on regional medical programs emphasizes the many faces of the term evaluation. Although several different opinions were expressed, there seemed to be agreement that evaluation was imperative, that in some areas it was difficult, in others, it might even be impossible, and that currently many tools for precise measurement were lacking. This paper is presented in order to share some of the current approaches to evaluation of the regional medical program of the Metropolitan New York City area. It represents the first steps of the 10,000-mile journey.

It early became apparent that just as total regionalization of our program would eventually result from the coalescence of subregionalization, so the total evaluation of our program would be the composite of the

evaluation of multiple elements of which the program is composed.

There was general agreement that the ultimate goal of our patient-oriented program was the improvement of the physical, mental, and social well-being of the population of the region as it related to the categories of our responsibility. To accomplish this, the program would attempt to shorten the lag between science and service (again, in the categories involved) by stimulating cooperative arrangements between both regions and institutions, relating to several areas of activity. As presently conceived, these are the areas of major thrust: (1) Continuing education; (2) ready access to efficient equipment and facilities; (3) development of adequate manpower with particular reference to the ancillary and paramedical fields; (4) research and demonstration dealing with efficient and economic delivery of services; (5) public health education; and, (6) maximum cooperative use of electronic data processing and automation. (See chart.)

It immediately becomes apparent that evaluation will not be limited to a single neat formula of measurement. There will be times when before and after studies will be possible, where reliable base line information has or can be assembled. Meanwhile, effects, both direct and indirect, which can be measured will be incorporated into our evaluation design. Specific effects such as the development of, and staffing of, intensive coronary

CHART I

IMPROVEMENT OF PHYSICAL, MENTAL, SOCIAL WELL-BEING AS RELATED TO CATEGORIES THROUGH SHORTENING SCIENCE SERVICE LAG IN RMP CATEGORIES BY STIMULATING COOPERATIVE ARRANGEMENTS BETWEEN REGIONS AND INSTITUTIONS RELATING TO:

Continuing Professional Education.	Access to Better Facilities and Equipment.	Manpower Ancillary Paramedical.	Demonstrations and Research in Efficient and Economic Delivery of High-Quality Services, Preventive, Diagnostic, Rehabilitative, Home Care.	Public Health Education.	Maximum Cooperative Use of EDP Automation.
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care units by well-trained personnel lend themselves to nose counts readily. In certain instances, we will be evaluating the end result of quality of care which Sam Shapiro so well characterized in writing as, "the desirability of determining quality of medical care by its effect on some measurable aspect of health is matched by the pessimism among researchers about the possibility of success in dealing with this issue."

Evaluation will be directed towards certain major elements of our program at different levels (see chart); first and most basic of all will be the inclusion in applications for operational grants of the maximum amount of evaluation feasible. We appreciate the fact that this will vary greatly depending on the nature of the activity involved, but at least some evaluation will be built into each project, even though the formula may not provide for as precise measurement as might be considered to be ideal.

The next element for the program to be evaluated is the actual accom-

plishment as far as the nuts and bolts are concerned. In other words, we will be evaluating our own program by measuring to what extent we have been able to stimulate cooperative arrangements between voluntary institutions at all levels, between the subregions within our own region, and interregionally. This level will also be measuring such things as the extent to which ready access to well equipped appropriate facilities has been helped through the RMP, to what extent we have been able to stimulate cooperative utilization of electronic data processing and to what extent we have been able to stimulate the development of regionalized automated laboratories.

The third and fourth parts of our

evaluation present perhaps the greatest challenge in our entire evaluation design. The third element will be an attempt to measure the impact of the program on the quality of the activities; for instance, to what if any extent have we been able to upgrade the field of continuing education, which, as you are well aware, in a region such as ours is tremendous. The problem in continuing education in our area is not that we lack the shows. Our problem is that too many of the shows are at the grade B movie level, too many are given at the wrong time in the wrong place, too many do not contain subject matter which is practical enough to be attractive to those who need it most.

In this area there will arise the

knotty problems of how to measure high-quality care. Just as the evaluation of the treatment of a fracture depends on not one but several measurements, such as an appraisal of the anatomical, functional, and economic end result, so the criteria of quality of medical care are multiple. Until some better parameters are established, we will be measuring quality of care by the degree to which it is available, acceptable, comprehensive, continuous, and documented, as well as the extent to which adequate therapy is based on an accurate diagnosis rather than symptomatology. Some idea of the enormity of the task becomes readily apparent.

We will be attempting to assess the degree to which the program has upgraded the skills of our ancillary and paramedical personnel and hopefully we will be measuring any improvement in the degree of accuracy of laboratory findings, as measured by performance tests, accomplished through regionalized automated laboratories as compared to current existing facilities.

The fourth element which of necessity is one of relative long range evaluation must be the impact on the

CHART II

LEVELS OF EVALUATION

Helping To Build Evaluation into Operational Grant Applications (Consultation and Advice).	Measuring the Extent to Which the Program Has Achieved Implementation of Programmatic Goals.	The Extent to Which Implementation of Goals Has Upgraded Skills, and Quality of Care, Improved Accessibility to Appropriate Facilities and Equipment, etc.	The Impact of the Program on the Health of the People of Our Region.
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health of the people of our region with particular reference to RMP categories of responsibility.

Incidentally, currently our advisory board has determined that at this point in time related diseases will include diabetes, renal disease, and chronic lung conditions such as those leading to Cor pulmonale.

These arbitrary divisions of evaluation are none of them clear cut and concise. They have many overlapping components, but by thinking of the overall problem of evaluation in terms of the composite of multiple parts it has helped to some extent to delineate directions in which we must go.

To anyone familiar with studies and research the magnitude of the evaluation task is apparent. In fact, if meticulously followed in every detail it could well absorb all of our resources, both manpower and financial.

In addition to members on our staff who are currently involved in evaluation, a study committee has been appointed which to date has had three meetings. We have been extremely fortunate in having in our area experts of national reputation who have been willing and able to participate in these discussions. We are currently exploring the possibility of developing a contract with, or instituting some arrangement with, an area school of public health to carry out some of the necessary studies and act in an ongoing consultant capacity. We also have been in touch

with the Public Health Service, Office of Program Planning and Evaluation. Although lacking the manpower to assign anyone to us on a full-time basis, they have been good enough to suggest their participation on a consultant basis from time to time which might involve various members of their staff to deal with such things as structuring the problems, designing data systems and assisting in analyses.

Lacking the strength to cope with the entire evaluation problem immediately, it is obvious that priorities must be assigned. Although these have yet to be spelled out, the particular problems of our region point towards directing our earliest thrust along those lines which will most effectively bring the strength of our RMP to bear on the problems peculiar to our innercity. Involving our several thousand unaffiliated physicians in some kind of continuing education and bringing them back into the mainstream, stimulating cooperative arrangements for the most efficient and widespread training of paramedical and ancillary personnel, and demonstrations of more efficient and economic delivery of services with organized home care perhaps in the forefront, are activities which have a certain amount of visibility and will be given all possible priority. The seriousness of our innercity problems is great. It is later than we think.

As an example of stimulating cooperative arrangements in the area

of manpower, our regional medical program is about to play host, thanks to The New York Academy of Medicine, for planning sessions on February 17 and 24 in preparation for a symposium on April 6, dedicated to the education of the people of the innercity in medical careers and to exploring and implementing ways in which there can be an upgrading of those already involved and escalation of their capacities and responsibilities in the health manpower arena. The meeting was originally inspired by the Manhattan Borough president who sought the cooperation of Columbia University. Through the regional medical program, it has now grown to involve all seven universities and the community colleges of the five boroughs. The immediate method of evaluation of this kind of cooperative activity is fairly obvious, the long-range evaluation of the impact should not be difficult with the passage of time. The important thing is that evaluation can be done.

Although much of the necessary base-line data can be readily assembled from local health department records, population data, Blue Cross, hospitals, our regional health and hospital planning council, and present programs of continuation education, foundations, etc., a vast amount of data gathering remains to be done. The task is enormous. Nevertheless, it is apparent to all involved that evaluation represents the very sinews of our entire program, that it is all encompassing, that it has a tremen-

dous positive potential and that it must be a daily ongoing activity. It must be continuous throughout the duration.

There used to be a 50-acre lot on our farm which from time to time had to be plowed. These were the days of the two-horse team and the single 12-inch plow or the three-horse hitch with the big single 14-inch plow. I can well remember my grandfather reminding us that there was only one way to get the job done, which was to turn the first furrow. This paper has described our first trip around.

30b

SYSTEMS APPROACH TO PLANNING

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Planning anticipates change. The regional medical program is a program of change within the existing health care system. Since there are competing demands for resources and since resources are limited, planning is imperative to expend these resources most productively. Many questions arise: What are the needed changes? Why select one change over another? How much does each change cost? Is it possible to implement the change? The answers to these questions are difficult but resolvable within the limitations of our knowledge and resources. The determinations are derived only after ob-

jectively elucidating what the basic elements are with which we have to deal.

The mere recognition of the need to plan does not imply the existence of the capability to plan. Why does one view with skepticism the capability to plan? In the first place, there appears to be rampant confusion between a plan and planning. Obviously, the plan is the result of the planning. This tautological error leads to and compounds a second error concerning the essence of planning. Planning is the conscious or unconscious implementation of a reasoning process. In other words, planning is the conscious or unconscious implementation of a methodology. Rational planning is defined herein as the conscious implementation of a methodology. Since one cannot consciously implement that which does not exist, rational planning requires the prior development of a methodology. The implicit confusion of a plan with planning impedes the prior development of a methodology which markedly increases the probability of irrational planning leading to irrational plans.

This error leads to and compounds a third error—the implicit and unrecognized confusion of data collection and analysis with the development and use of a planning methodology. This error leads to the collection of a warehouse full of encyclopedic data and statistics, which is rarely ever analyzed, in the true sense, but which mostly serves as a psychological crutch

in planning. This statement is based on the observation that if one does not know how he intends to use the data before he collects it, he generally does not know how to use it and therefore *does not* use it after collection. On the other hand, since a planning methodology is an interrelated decision network where for each well-defined decision the data required to make the decision is specified, one knows exactly what data to collect and how to use it. This error with respect to data collection contains within it still another and perhaps the most important error—the relative lack of appreciation in planning for the role of substantive knowledge about the relationships between people and disease, disease and services, services and resources. In practice, planning often proceeds as if it is substantially different from that which is being planned. Thus in the health field, hordes of encyclopedic data describing the community are collected but virtually no substantive knowledge has ever been collected, structured, and factored into the planning methodology. Of the two sets of data—substantive and encyclopedic—substantive knowledge has primacy. Indeed only by structuring substantive knowledge about the health field can one really know what kind of encyclopedic data to collect about people, services, and resources in the community and how to use this encyclopedic data in planning. The key substantive health concepts that must be considered in the develop-

ment of a planning methodology will be discussed.

Since planning does not take place in a vacuum, an overall objective for evolving a plan must first be set. For the Greater Delaware Valley Regional Medical Program the overall health objective is to minimize the loss of useful years from heart disease, cancer, stroke, and related diseases in the Greater Delaware Valley region. This carefully worded statement contains several important implications. It is the individual who loses useful years either through needless death or disability; the word minimize acknowledges that death is not preventable and emphasizes reducing the loss, not eliminating it; the word useful recognizes that valued judgments are inescapable but must be identified and circumscribed.

Since the individual is the center of the effort, the next question is: What is common to the individual which has application and meaning to the organization and implementation of a regional medical program? The common threads are the diseases. Since the critical elements are the diseases—the salient factors one must know are the diseases in all their manifestations, their resource demands, and their courses. Since the disease is not static one must know the natural history of disease as it evolves with the passage of time.

Disease is a continuous process. One starts from a nondisease state, develops a disease and dies with the disease. An oversimplification is to vis-

ualize nondisease as on end point, death as the other with all the shadings of a spectrum between these points. Any point on the spectrum can be considered a health-state. Each point differs from another and in general varies significantly in terms of physical disability, the need for various professional and nonprofessional services and resources, and the degree of usefulness resulting from altering the health-state. At any time, depending on the medical state of the art there are medically defined health-states which are relatively reversible and containable. Any planning methodology must consider all medically defined health-states. Using cancer of the cervix as an example the medically defined states in the progressions of the disease are as follows:

Nondisease

Chronic cervicitis

Dysplasia of the cervix

Carcinoma-in-situ

Stage 1—Invasive carcinoma, confined to the cervix

Stage 2—Carcinoma invading beyond the cervix but not involving the pelvic wall

Stage 3—Carcinoma invading the pelvic wall

Stage 4—Carcinoma involving the bladder and rectum

Death

Every individual is in a certain health-state. He is not static and has one of three pathways he can take. He can go from his present state to a more negative or worse state, he

can go from his present state to a more positive or better state, or he can be contained in his present state with varying probabilities.

The two elements varying those probabilities are health-factors and the standards of care. There are two major types of health-factors—the unmodifiable and the modifiable. Examples of health-factors in vulnerability to cancer of the cervix are as follows:

Zero probability in virgins

One-fifth as common in Jewish women as compared to non-Jewish women

Twice the incidence in American Negroes as in white women

The probability increases exponentially the higher the multiparity.

Some of these factors are modifiable and some are unmodifiable such as race and ethnic origin. Standard of care is defined as a set of services delivered to an individual with any health-factor in any health-state. The probability of going, or making transitions, from one health-state to either a more positive or more negative health-state, is not only directly related to the standard of care but is the only real measure of effectiveness of its associated standard of care.

Any effective planning methodology must determine and structure what is known about the health-states and health-factors, the standards of care and their associated transition probabilities, and the resources required to implement the standards of

care for each health-state and health-factor.

A detailed methodology encompassing these concepts has been developed for the Greater Delaware Valley Regional Medical Program and is currently being applied, as a model, to the problem of cancer of the cervix. A detailed demonstration of the methodology is being presented during this conference by one of the authors (A.S.).

In conclusion it is important to state that a planning methodology does not make up for gaps in knowledge. It just makes best use of what is known and makes explicit that which is not known.

31

A STUDY OF PHYSICIAN OFFICE PRACTICE IN THE CONNECTICUT REGION

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Regional medical programs came into being in response to widespread professional and public concern regarding the necessity to seek mechanisms for quicker transmission of the fruits of medical care research into effective patient care. Thus, a major objective of a regional medical program should be to render support and assistance to the practicing physician. Yet, it is somewhat paradoxical that so little is known about his practice. This is a serious problem both at the national and local levels. Although there have been several geographically confined investigations of varying degrees of depth (refs. 1-10, 12, 14-17, 19-24, 27, 28, 31, 32), and a few attempts to portray national patterns of practice (13, 29), it is almost impossible to translate the find-

ings of these studies into effective action in an area such as that defined by the Connecticut Regional Medical Program.

While the data maintained by the American Medical Association on the personal and professional characteristics of practicing physicians and their types of practice is of considerable importance for certain kinds of analyses, they provide little insight into the activities actually performed by physicians and the settings in which they practice. If detailed information such as this were available, it would be possible to analyze the range of physicians' practices from so-called general to specialized practice, and from solo to group practice; the present paucity of data forces us to speak of these categories of practice as abstractions. Furthermore, dependable information concerning present patterns of practice would lead to a better understanding of the problems confronting medical education, including postgraduate training. In addition, such data would allow a more accurate assessment of the economics of medical practice, pinpoint the major factors influencing patterns of referral and use of available facilities, and provide bench marks against which to gauge the impact of some of the planned activities of the regional medical program.

The proposed physician office practice study, briefly outlined below, is one of several studies planned to examine the basic components of our State's medical care system. Many of

the details of the study design reflect our attempt to integrate the various investigations to produce a meaningful regionwide picture. Some of the proposed procedures will require considerable pilot testing, and, at present, they suffer from a lack of specificity.

Figure 1 outlines the proposed health service areas to be used for research and planning purposes in CRMP. Another paper presented at this conference (26) gives the underlying rationale for this subdivision of the State; suffice it to say here that the delineations represent more or less of a consensus among the various planning agencies on what the mean-

ingful social, economic, and health areas are in the State. The variations among the health service areas in these characteristics is fairly large.

Tables 1 through 6 present some of the basic characteristics of physicians in the State as maintained by the American Medical Association, and are taken from an intensive analysis of the AMA tapes conducted last spring (11).

As can be seen from table 1, the distribution of Connecticut physicians by the nature of the professional activity corresponds fairly closely with the national distribution. However, a somewhat higher proportion of phy-

sicians in private practice in direct care of patients devotes full time to specialty practice in Connecticut (74 percent) compared with the national average (64 percent).

Tables 3 through 6 present the distributions by specialty interest and type of practice for each of the 10 health service areas in the State. Inspection of these tables will reveal that a high proportion of the physicians in private practice is concentrated in four of the 10 health service areas, and that this distribution roughly corresponds with the distribution of the resident population of the State. Furthermore, although the absolute numbers of physicians vary by health service area, the proportionate distribution by specialty interest is fairly close.

The principal purposes of the proposed study are to gain further insight into the nature of the activities related to physicians' practice, especially those individuals engaged in primary patient care, the factors associated with variation in patterns of practice, the characteristics of the patient populations served, and the patterns of care provided. Furthermore, it will be of interest to relate this information to the characteristics of the health service areas. It is obviously impossible to make a detailed study of all physicians in private practice in each of the health service areas. We are planning, therefore, to conduct a multistage study involving mail questionnaires to all physicians in the State and a more intensive analyses

FIGURE 1

**CONNECTICUT REGIONAL MEDICAL PROGRAM
PROPOSED HEALTH SERVICE AREAS**

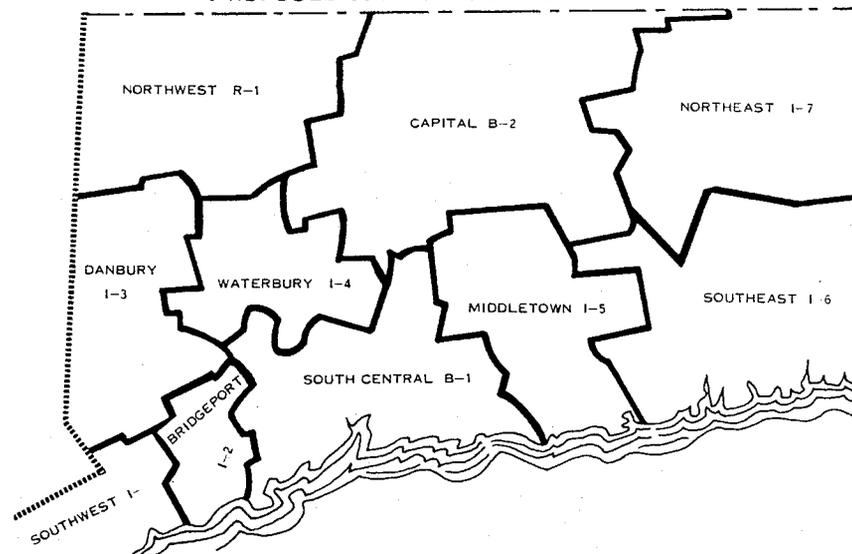


TABLE 1
DISTRIBUTION OF PHYSICIANS IN CONNECTICUT, 1966
BY MEDICAL ACTIVITY

Nature of professional medical activity	Total Connecticut physicians	Percent Connecticut physicians	Percent U.S. physicians*
Total.....	5,190	100.0	100.0
Direct care of patients—private practice....	3,291	63.4	64.9
Direct care of patients—not in private practice.....	1,410	27.2	26.4
Medical related activities.....	427	8.2	7.2
Nonmedical related activities.....	0	0	
Fellow or other graduate trainee.....	62	1.2	1.4
Retired or not in practice.....	**0	0	***0

*American Medical Association, "Distribution of Physicians, Hospitals and Hospital Beds in the U.S.," Chicago, 1966.

**No physicians were found listed on the AMA tape in this category.

***This figure adjusted for Connecticut comparison; it was originally 4.98 percent.

TABLE 2
DISTRIBUTION OF PHYSICIANS IN CONNECTICUT, 1966
BY TYPE OF PRACTICE

Type of practice	Number	Percent
Total.....	4,311	100.0
Direct care of patients—private practice:		
1. Full-time specialty practice.....	2,442	56.6
2. General practitioners without specialty interest.....	563	13.1
3. General practitioners with specialty interest.....	286	6.6
Subtotal.....	3,291	76.3
Direct care of patients—not in private practice:		
4. Preventive medicine.....	132	3.1
5. Full-time staff in hospital (excluding interns and residents).....	525	12.2
Subtotal.....	657	15.2
Medical related activities:		
6. Full-time medical school faculty.....	230	5.3
7. Administrative medicine.....	68	1.6
8. Laboratory medicine (pathology, radiology, etc.).....	65	1.5
Subtotal.....	363	8.4

of the practices of a probability sample of physicians in selected areas.

As indicated above, the AMA data have yielded considerable insight into the personal and professional characteristics of practicing physicians in the State. In addition, we are currently conducting studies to augment these data with additional characteristics such as sex, race, and hospital appointments. The latter study involves the development of a functional classification of all such appointments within the State, with ranking of the relative importance of multiple appointments in terms of the number of patients admitted by a physician to a particular institution. However, for certain planning purposes, it is desirable to collect additional information both to verify the AMA data and to gain a better understanding of postgraduate educational activities.

The intensive study will be conducted within three of the health service areas: a base health service area (south central, B-1, which centers upon the city of New Haven), an intermediate area (Greater Waterbury, I-4), and a more rural and isolated peripheral area (north-east, I-7).

Within each of the areas, will be selected a probability sample of physicians in private practice who, it is reasonable to suppose, provide at least some primary care to patients. Analysis will therefore be limited to physicians identified as general prac-

tioners, as well as those with a primary specialty interest in internal medicine, pediatrics, and obstetrics-gynecology. A total sample of approximately 250 physicians will be chosen, with proportionately more physicians selected from the less densely populated areas. The overall sample design will be such that statements can be made about the practices of physicians in each of the specialty areas for the State as a whole and for all physicians combined in each of the health service areas.

For each of the physicians included in the sample, the following information will be collected through personal interview and an activity record to be maintained by the physician or someone in his behalf for a short period of time (probably a 2-week period):

1. Type of practice, e.g., solo, partnership, group (with characterization of numbers and specialty interests of other physicians in the partnership or group).

2. Office personnel, with qualifications in terms of experience and education.

3. Postgraduate educational activities and less formalized continuing education, e.g., number and type of professional meetings. (Considerably more detail will be collected in these areas as compared with the information collected through the mail questionnaire.)

TABLE 3
DISTRIBUTION OF PHYSICIANS IN CONNECTICUT, 1966
BY HEALTH SERVICE AREAS

Health service area	Population			All physicians			MDs in private practice—direct patient care		
	Number of towns	Resident population*	Percent of total	Total	Percent of all MDs	MDs/million population	Total	Percent of all MDs	MDs/million population
Connecticut	169	2,857,820	100.0	4,311	100.0	1.5	3,291	100.0	1.2
Southwest (I-1)	8	328,500	11.5	538	12.5	1.6	477	14.5	1.5
Bridgeport (I-2)	5	249,500	8.7	374	8.7	1.5	353	10.7	1.4
South Central (B-1)	21	617,300	21.6	1,138	26.4	1.8	727	22.1	1.2
Middletown (I-5)	15	102,300	3.6	130	3.0	1.3	100	3.1	1.0
Southeast (I-6)	20	209,600	7.3	336	7.8	1.6	183	5.6	.9
Danbury (I-3)	12	118,200	4.1	160	3.7	1.3	125	3.8	1.0
Northwest (R-1)	17	77,930	2.7	96	2.2	1.2	90	2.7	1.1
Waterbury (I-4)	12	203,900	7.1	224	5.2	1.1	195	5.9	1.0
Capitol (B-2)	39	838,660	29.4	1,233	28.6	1.5	978	29.7	1.2
Northeast (I-7)	20	111,930	3.9	82	1.9	.7	63	1.9	.6

*Connecticut population figures (projected as of July 1, 1966) taken from "Weekly Health Bulletin," Mar. 28, 1966, published by the Connecticut State Department of Health; these figures do not include the 15,229 inmates in Federal and State penal institutions.

4. Vacation (amount, how covered).
 5. Appointment systems, out-of-hours contact.
 6. Office facility in which patients are seen, in terms of functional attributes.
 7. Office equipment.
 8. Patient information system employed by the physician including medical and financial records.
 9. Laboratory capabilities and practices.
 10. Impressions in regard to the referral process, reasons why referrals are made in general, constraints on the process.
- One of the most important stages

of the overall study will be the analysis of the volume of practice and the size of the patient panel, the characteristics of the patients served by the physician in the designated sample, and, for a sub-sample of patients in specified diagnostic categories, a detailed description of the patterns of care provided and the utilization of available resources. On the basis of the findings of previous studies concerned with physicians' office records and our own anticipation of the difficulty involved in collecting uniform data of this type from approximately 250 individual practitioners, we are proposing the following steps. First, gross data on the total volume of

practice in terms of the numbers of patients served and the volume of basic units of service (e.g., office visits) will be determined through an analysis of existing records for the 12-month period prior to the time of the initial contact with the physician during the study. Secondly, a medical care event record will be placed in each of the sample physicians' offices to collect, over a short period of time (probably 2 weeks), detailed information on the characteristics of the patients seen and the nature and volume of professional services rendered. The following are illustrative of the kinds of information to be sought: patient's age, sex, township of resi-

dence, marital status, race, nativity, and ethnic characteristics; occupation of head of household, nature of presenting complaint (reason for visit), place of service rendered (home, hospital, ECF, etc.), and the time devoted to each type of visit, as well as information concerning the procedures and the outcomes of each contact, e.g., physical exams, prescriptions, etc. It is planned to tie this stage of study to the activity analysis mentioned above.

For selected diagnoses, an attempt will be made to sample individual patients and trace the patterns of care over time, i.e., preceding and following the 2-week study period. This multistage approach will allow us to generate estimates of the patterns of care and characteristics of the patient population for the State as a whole and for specific types of practitioners, while the detailed analysis for certain diagnostic categories will allow a much more intensive portrayal of the complex of professional activities related to the care of an individual patient.

The general plan is to employ physicians to conduct the interviews with the selected practitioners and to supervise the lay and paramedical field personnel who will be responsible for much of the detailed data collection.

Hopefully, this brief presentation will give some idea of the scope of the proposed study. It should be re-emphasized that this is one of several

TABLE 4a

NUMBER OF PHYSICIANS IN CONNECTICUT, 1966
BY HEALTH SERVICE AREA AND TYPE OF PRACTICE

Health service area	Total physicians	Specialists	GPs without specialty	GPs with specialty	Preventive medicine	Hospital staff (number of interns and residents)	Medical school faculty	Administrative medicine	Laboratory medicine
Connecticut	4,311	2,442	563	286	132	525	230	68	65
Southwest (I-1)	538	375	68	34	7	32	2	9	11
Bridgeport (I-2)	374	262	64	27	4	11	1	2	3
South Central (B-1)	1,138	554	117	56	26	133	220	14	18
Middletown (I-5)	130	59	25	16	3	23	1	2	1
Southeast (I-6)	336	135	32	16	7	135	0	8	3
Danbury (I-3)	160	75	31	19	0	32	0	2	1
Northwest (R-1)	96	56	22	12	2	2	0	1	1
Waterbury (I-4)	224	131	27	37	6	17	1	0	5
Capital (B-2)	1,233	761	157	60	74	129	3	28	21
Northeast (I-7)	82	34	20	9	3	11	2	2	1

TABLE 4b

PERCENTAGE DISTRIBUTION OF PHYSICIANS IN CONNECTICUT, 1966, BY HEALTH SERVICE AREA AND TYPE OF PRACTICE

Health service area	Total physicians	Specialists	GPs without specialty	GPs with specialty	Preventive medicine	Hospital staff (number of interns and residents)	Medical school faculty	Administrative medicine	Laboratory medicine
Connecticut	100	56.6	13.1	6.6	3.1	12.2	5.3	1.6	1.5
Southwest (I-1)	100	69.7	12.6	6.3	1.3	6.0	.4	1.7	2.0
Bridgeport (I-2)	100	70.1	17.1	7.2	1.1	2.9	.3	.5	.8
South Central (B-1)	100	48.7	10.3	4.9	2.3	11.7	19.3	1.2	1.6
Middletown (I-5)	100	45.4	19.2	12.3	2.3	17.7	.8	1.5	.8
Southeast (I-6)	100	40.2	9.5	4.7	2.1	40.2	.0	2.4	.9
Danbury (I-3)	100	46.9	19.4	11.9	.0	20.0	.0	1.2	.6
Northwest (R-1)	100	58.3	22.9	12.5	2.1	2.1	.0	1.0	1.0
Waterbury (I-4)	100	58.5	12.1	16.5	2.7	7.6	.4	.0	2.2
Capital (B-2)	100	61.7	12.7	4.9	6.0	10.5	.2	2.3	1.7
Northeast (I-7)	100	41.5	24.4	11.0	3.7	13.4	2.4	2.4	1.2

projects related to the patient care process. A study is currently underway concerning the patterns and reasons for referral of patients to the Yale-New Haven Medical Center, and an elaborate study is being proposed for the followup of patients in selected diagnostic categories to determine the outcome of care. We are tentatively planning to have this latter study and the physician office practice study, described here, run concurrently, hopefully using the same patient sample for both studies. Together, the two studies should provide valuable data for future planning and serve as at least one benchmark against which to measure the impact of the Connecticut Regional Medical Program.

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TABLE 5a

NUMBER OF PHYSICIANS IN CONNECTICUT, 1966, BY HEALTH SERVICE AREA AND TYPE OF PRACTICE

Health service area	Total	Physicians in private practice			Physicians not in private practice
		Specialists	GPs without specialty	GPs with specialty	
Connecticut	4,311	2,442	563	286	1,020
Southwest (I-1)	538	375	68	34	61
Bridgeport (I-2)	374	262	64	27	21
South Central (B-1)	1,138	554	117	56	411
Middletown (I-5)	130	59	25	16	30
Southeast (I-6)	336	135	32	16	153
Danbury (I-3)	160	75	31	19	35
Northwest (R-1)	96	56	22	12	6
Waterbury (I-4)	224	131	27	37	29
Capital (B-2)	1,233	761	157	60	255
Northeast (I-7)	82	34	20	9	19

TABLE 5b

PERCENTAGE DISTRIBUTION OF PHYSICIANS IN CONNECTICUT, 1966 BY HEALTH SERVICE AREA AND TYPE OF PRACTICE

Health service area	Total	Physicians in private practice			Physicians not in private practice
		Specialists	GPs without specialty	GPs with specialty	
Connecticut	100	56.6	13.1	6.6	23.7
Southwest (I-1)	100	69.7	12.6	6.3	11.4
Bridgeport (I-2)	100	70.1	17.1	7.2	5.5
South Central (B-1)	100	48.7	10.3	4.9	36.1
Middletown (I-5)	100	45.4	19.2	12.3	23.1
Southeast (I-6)	100	40.2	9.5	4.7	45.6
Danbury (I-3)	100	46.9	19.4	11.9	21.8
Northwest (R-1)	100	58.3	22.9	12.5	6.3
Waterbury (I-4)	100	58.5	12.1	16.5	12.9
Capital (B-2)	100	61.7	12.7	4.9	20.7
Northeast (I-7)	100	41.5	24.4	11.0	23.1

TABLE 6a

NUMBER OF PHYSICIANS IN CONNECTICUT, 1966 IN SELECTED MEDICAL SPECIALITIES AND BY HEALTH SERVICE AREAS

Health service area	Total	General practice	General surgery	Internal medicine	Obstetrics and gynecology	Pediatrics	Psychiatry	All other
Connecticut	4,311	896	373	630	285	270	344	1,513
Southwest (I-1)	538	97	43	101	35	38	56	168
Bridgeport (I-2)	374	90	42	52	33	18	18	121
South Central (B-1)	1,138	181	84	170	68	91	109	435
Middletown (I-5)	130	41	8	10	6	5	22	38
Southeast (I-6)	336	79	30	37	21	15	29	125
Danbury (I-3)	160	53	16	16	7	9	21	38
Northwest (R-1)	96	33	13	10	5	4	2	29
Waterbury (I-4)	224	64	23	25	13	17	9	73
Capitol (B-2)	1,233	225	105	205	92	70	75	461
Northeast (I-7)	82	33	9	4	5	3	3	25

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TABLE 6b

PERCENTAGE DISTRIBUTION OF PHYSICIANS IN CONNECTICUT, 1966, IN SELECTED MEDICAL SPECIALTIES AND BY HEALTH SERVICE AREAS

Health service area	Total	General practice	General surgery	Internal medicine	Obstetrics and gynecology	Pediatrics	Psychiatry	All other
Connecticut	100	20.8	8.6	14.6	6.6	6.3	8.0	35.1
Southwest (I-1)	100	18.0	8.0	18.8	6.5	7.1	10.4	31.2
Bridgeport (I-2)	100	24.1	11.2	13.9	8.8	4.8	4.8	32.4
South Central (B-1)	100	15.9	7.4	14.9	6.0	8.0	9.6	38.2
Middletown (I-5)	100	31.6	6.2	7.7	4.6	3.8	16.9	29.2
Southeast (I-6)	100	23.5	8.9	11.0	6.3	4.5	8.6	37.2
Danbury (I-3)	100	33.1	10.0	10.0	4.4	5.6	13.1	23.8
Northwest (R-1)	100	34.4	13.5	10.4	5.2	4.2	2.1	30.2
Waterbury (I-4)	100	28.6	10.3	11.2	5.8	7.6	4.0	32.4
Capital (B-2)	100	18.2	8.5	16.6	7.5	5.7	6.1	37.4
Northeast (I-7)	100	40.2	11.0	4.9	6.1	3.7	3.7	30.4

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CONSUMER HEALTH CARE SURVEY

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Public Law 89-239 specifies what behavioral scientists call a social change program (1). All social change programs, whether directed at improvements in race relations, urban problems (riots, housing, etc.), or health, have a two-step requirement in common. The first step is to determine the priority of needs, and the second is to assess which operational programs are meeting these specified needs. Meeting these requirements is usually accomplished by a process called "evaluation" (2, 3).

Evaluation is like what a physician does in diagnosing, treating, and learning from his care of a patient. Indeed, the relationship between doctor and patient is comparable to the relationship between the workers in the social change program and the problems they are attempting to solve.

Like the doctor, workers in social change programs first attempt to distinguish symptoms of the problems they face from the basic causes. In

social change programs, however, symptoms consist of the subjectively expressed opinion of people regarding what I shall call their "felt" needs. The basic causes are not often identified in the expression of these "felt" needs. Thus, the first step in evaluation is to determine "felt" needs. Then, through the use of objective and factual, "hard" data, to validate whether these "felt" needs are the real cause of the problem.

It is important to point out that the use of objective data is very necessary. This is the only way subjective needs can be differentiated from true causes of basic problems.

The second step is to design projects to overcome the true problem. Here, too, "hard" data are important. It is through analysis of objective information that one determines how to attack the problem.

Finally, of course, given need determination, project design, and project implementation, one attempts to determine whether or not intended goals have been achieved. Here, too, objective, factual data are important. It is only through such data that conclusions about project outcomes can be defended. Ideally, the objective measures in the evaluation of project outcomes are the same as or derived from those used in identifying the true needs and designing the project to meet it.

This is the way it is supposed to work. But it doesn't.

It doesn't work this way for a number of reasons. One of the most im-

portant of these is because of failure to understand the necessity for validation of "felt" needs. Remember, by validation of "felt" needs, I mean going through a process of evaluating them in relation to objective facts. Only in this way are they truly identified as symptoms of more basic problems. How can this be done?

One way is to look at the logic of the social change process specified in the law. Public Law 89-239 defines what behavioral scientists call an A-B-X model of social change. In an A-B-X social change model, it is presumed there will be a linear relationship between causal factor A which will produce changes in factor B. Under such a plan, it is anticipated that changes in factor B will filter down to factor X, the last element to be changed.

As applied to Public Law 89-239, factor A is the regional medical program and the cooperative relationships it is supposed to promote. Factor B consists of hospitals, research institutions, medical schools, and health care professionals. Factor X represents the consumers of health care. Thus, regional medical programs are expected to have a beneficial effect upon health institutions and professions such that through a filter-down process, diagnosis, treatment, and care of patients who have the categorical diseases will be improved.

Yet, there is one risk in using this model of social change. The groups regional medical programs work with consist of health care institutions,

medical schools, research institutions, and health care professionals, factor B in the social change model. In any two-person, two-group, or two-society interaction, there is great danger that they will communicate more with one another than with other persons, groups, or societies whose messages may be equally important as those coming from the group with whom the most interaction is maintained.

This principle relates to the problem of validating "felt" needs. If it happens that regional medical programs tend to identify the "felt" needs of institutions and practitioners (factor B in the model) as real needs, they will run risks of missing the true basic problems, or "really" real needs. The question thus remains: "How can 'felt' needs be validated and identified as real or basic needs?"

The answer is in making use of data from the other object of our change efforts, the consumers of health care who also are the populations at risk concerning the categorical diseases, or factor X. In other words, need determination based only upon data obtained from hospitals, research institutions, medical schools, and health care professions is not sufficient. It must be analyzed and compared to other data taken from the consumers of health care. It is only through such a comparison, that real needs will be distinguishable from presumed, or "felt" needs which are not basic. It is here that

the intelligent use of objective data becomes important. Let me now briefly describe one way of obtaining and using such objective data.

Many kinds of objective data are available for regional medical program use in validating "felt" or expressed needs. Records from insurance plans, hospitals, State and county health departments, State medical associations, etc., are available, for example, in the States of Washington and Alaska. Yet, few of these data, if any, are organized around the categorical diseases of interest to the regional medical program. Most of this information does not include data for analysis of geographical subregions in the overall region. Data about ecological and demographic characteristics of both consumers and workers in the health field are limited, if available at all. There is insufficient information about characteristics of institutions in relationship to health needs of populations served. And so on.

In addition, data from the national health surveys are also available (4). Even these data, as reported from initial work, do not offer comprehensive coverage of the region, generally comprising a sample of 11 families in one small eastern Washington community. While presenting baseline information for comparisons with national figures, and methodological techniques in "canned form," they do not allow for intraregional comparisons relative to program needs.

Similar comments may be made about general census data.

The reasons these data do not fill regional medical program purposes is very simple. Most of them were collected for other important and useful purposes; but not for purposes of the regional medical program.

Yet, these data comprise an important and useful resource to the regional medical program, given one proviso. This proviso is that they be correlated with new data obtained for regional medical program purposes, within two criteria. These criteria are that: (1) Data obtained by the regional medical program should be reasonably compatible with data from other sources, and (2) regional medical program data should fill in gaps and tie other data together.

We are designing a consumer health care survey using the mail questionnaire method which will meet these criteria. This survey has a number of characteristics which may be of interest to other regional medical programs.

This initial survey rests upon the assumption that health is of sufficient concern to most people that they not only can, but do remember, salient facts about both their own health and the care they have received. This assumption has been supported by national health survey findings about the high degree of association between what patients say about their health and what physicians find on independent physical examination (5).

The health information being

sought in the survey concerns the 34 chronic diseases used in the national health survey and will be compatible with it. We are asking not only whether household members are known to have any of these diseases, but if so the extent to which they are disabled by them; also if under medical care, from which physicians and hospitals they usually receive their care.

It is anticipated that these data will provide a means of estimating morbidity within the population more directly than other data now available to us. By using such data in relationship to morbidity figures taken from more specific sources, such as employment medical or insurance examinations, it will be possible to estimate sampling variance, and arrive at estimations which are accurate within known standard errors of estimate. Having sampled throughout the region, we then should be able to estimate with respect to intraregional areas, noting the high and low frequencies.

By having information on what physicians and hospitals are used by the population, we will be in a position to get some measure of the load carried by health care services and facilities within subregions. Through the use of collateral data from the State medical and hospital associations, we should be able to more clearly and objectively pinpoint where such facilities as coronary care units, stroke rehabilitation services, and cancer radiation therapy are

needed. By looking at board certification and specialty of practice of health care professionals within subregions, we will also have knowledge about their distribution, as well as the impact they are having in carrying on their day-to-day practices (i.e., we will be able to identify the semiretired from the retired, a problem that often presents difficulty in assessing medical manpower resources, for example).

Another element of concern in this initial mail survey is the frequency with which people use health care facilities, and whether they use them for preventive medicine or primarily for sick care. In this regard, we are interested in the relationship between such factors as distance and mode of travel to service centers. These data will allow the specification of ecological relationships between frequency of disease and disability and service facilities in excess of, or under, requirements to meet their needs. The gap thus defined will provide regional medical program planners with the opportunity to point out where needs exist not only in the location of new facilities, but also in the context of redistributing available facilities.

Finally, of course, we will relate these data from other sources. This will include data such as patient satisfaction from facilities, and professionals. When this is done it should be possible to build a rich data bank for planning purposes that will be regionally relevant, and useful in determining needs to be met by regional medical programs.

The sampling design is to be an area cluster sample of about 5 percent with standard errors of about .01, taken initially from electric utility hookups. The subregions, as studied in other research, within the total region are sufficiently homogeneous to allow this approach. Electric utility hookups will tap all dwellers, except those living in hotels, motels, and institutions such as prisons, hospitals and other domiciliary dwellings. A wave sampling procedure in which one proceeds from county to county will allow for sampling reliability and validity checks as the survey is carried out.

It is estimated that of about 3 million households in the State of Washington, for example, around 5,000 could be sampled for an average cost of \$2 per unit, and meet all of the criteria specified above.

Because of compatibility of data with other surveys, either now in process, or projected, as well as with the national health survey and other resources, it is anticipated the generation of background information will be sufficiently precise to permit a wide range of planning and "felt" need validation within regional medical program goals.

We are also interested in what people spend for health care and how they pay for expenses. Other studies have shown, including the national health survey, that health care expenses, for most purposes other than sick care, are generally minimal, and that they do follow affluence (i.e.,

that is the more a given household has, the more likely they are to spend on health care). By relating these data to information about disease and disability and use of services and facilities, we should be able to identify the population groups most in need of medical attention, the population groups now using health care services at the margin of need and luxury, and the population groups using health care services largely because of sociocultural aspirations, not because of disease or preventive health determined needs.

We are interested in what people identify as a health care need, i.e. the basis upon which they decide they are ill or that a given practice is unhealthy. A number of studies have shown high and interesting correlations between what people believe and what they do about their health. There is not always a relationship, however, between medically defined disease, and what they do. This information, broken down in relationship to intraregional areas, household, community, and general demographic characteristics will be useful in determining the nature of public information and persuasion programs in relation to the categorical diseases. At the present time, no cultural survey in relationship to health within our region is available, and is badly needed for the reasons mentioned above.

Another set of items will attempt to tap patterns of health care seeking behavior and from whom it is sought.

This will be useful not only in validating data mentioned above, but also in relating to differences observed in response to the symptoms of cancer, in particular, but also to hypertension, emphysema, and other diseases related to the categorical disease of concern to the regional medical program.

This paper has described a major dilemma in evaluation of the social change program which is based on an A-B-X model of social change. It was pointed out that the primary risk in such a model is determining if "felt" needs are real and basic. It was suggested that even though available data sources are incomplete and inadequate for many purposes, they may still be used to validate "felt" needs by correlating them with new data gathered to meet regional medical program purposes. In the Washington-Alaska Regional Medical Program, this is being done by means of a consumer health care survey. It is designed to meet such criteria as representative sampling, data compatible with resources, and analysis based on cross tabulation by subregional characteristics.

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CONTINUUM OF LONG-TERM CARE WITHIN A LOCAL HEALTH SERVICE AREA

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The most severe of the deficits now challenging the new determination of American society to close its health service gaps is the inadequacy of care for those with chronic illness and disability. Despite many gains in clinical knowledge, steady expansion of resources and a vast new Federal program of financial support, the current pattern of long-term care is one of shortages, maldistribution and poor quality of service. Most dismaying in the situation, however, is the lack of coordination and planning, the almost total disarray of existing resources, which so tragically reduces the effectiveness of even those services which do exist.

To the quantitative and qualitative shortcomings of the resources now available to the chronically disabled must be added the problem of

negative attitudes toward the long-term patient and lack of the most modern information on the part of the professional and administrative personnel responsible for program operations.

The combination of gaps in service, confusion in relationships and diffidence in staff motivation has particular impact upon those in the post-acute stages of treatment for heart disease, cancer and stroke. These most burdensome of chronic disorders require for their proper care quite another pattern—that of carefully coordinated case management through a spectrum of graded services—if effective methods of medical treatment and social support are to have meaning for the individual patient.

In previous experiences with regional organization of medical service, in this and other countries, most attention has been given to the interrelationships of acute general hospitals, teaching centers and medical clinics. Only rarely have the areawide programs included the nursing homes and home health services of the community. Thus despite the special need for rationalization in both space and time of services for long-term disorders, these have not generally profited from the pioneering earlier efforts to demonstrate regional partnerships for health.

A new opportunity is now offered through the national regional medical program to make broad gains in the war against chronic disease. The con-

cept of regional planning adopted in Connecticut is that of areawide coordination of all health care services—without the constraints of categorical disease partitions, and without exclusive preoccupation with the more glamorous aspects of acute hospital care.¹ The statewide participation of all elements of the health care spectrum and the reasonably adequate supply of long-term care facilities in Connecticut provide a unique laboratory for the demonstration of new approaches to this old problem. Our intention is to pursue this opportunity with special vigor.

The State is relatively fortunate in that its 3 million people live in a compact geographical area with good communication and transportation resources. Its 35 general and 15 special hospitals are fairly well distributed and all fully accredited. Three-fourths of its 256 nursing and convalescent facilities are certified under the medicare standards. The rapid growth of resources during the past two decades is reflected in the increase from 155 to 256 licensed facilities and from 17 to 50 as the average of beds per facility.² Their spatial distribution in relation to the general hospitals has provided an excellent starting point for the designation of some 10 local health service areas within the regional system.

On the other side of the ledger are the facts that over 90 percent of these extended care facilities are proprietary in ownership, are seriously deficient in terms of modern medical

care, and are currently overburdened in the wake of the recent medicare legislation.

The RMP in Connecticut has organized a number of active task forces for study and recommendations in specific aspects of regional medical planning.³ One of these, chaired by the State Commissioner of Health, is directly concerned with extended care facilities and programs. Among its other current activities is the sponsorship of special demonstrations in coordinated long-term care, as will be later described.

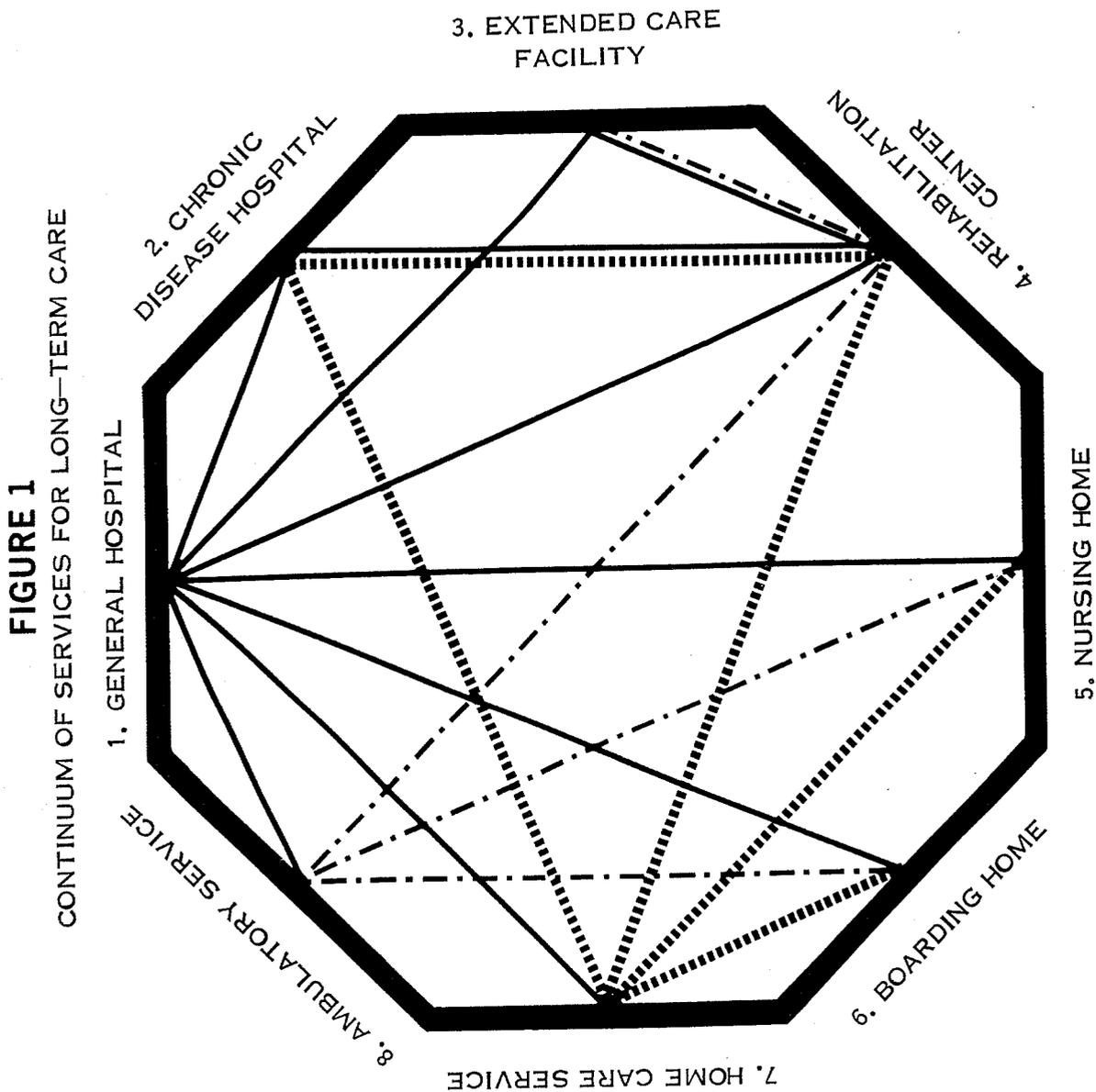
The basic concept guiding the pilot efforts in Connecticut is that of a functional continuum or spectrum of interconnected resources for long-term care within a health service area. Ideally, this requires a system of overall program supervision, developed cooperatively by the participating agencies, and a network of formal affiliation agreements, as the context for an array of activities and arrangements relating to standards of patient care, staff liaison, record systems, criteria for admission and transfer, consultations, training programs, and the like. Once the various sections of the track are joined through such organizational ties, all operational barriers must be removed to the proper flow of patients, staff and services to the various stations in the system.

The total spectrum may be pictured as an octagonal ring, with all cross connections fully patent (fig. 1). Facilities or agencies numbered 1, 2, 3, 4, and 8 provide treatment primar-

ily, while 5, 6, and 7 offer mostly personal care with less of an active clinical component. An appropriate mix of such resources is obviously essential in any complete system.⁴

Key elements of the continuum are to be developed within the acute general hospital itself, as a basis for the overall program. Evaluation of the patient on admission must relate to the whole person, with as much importance attached to the personal and social information regarding function and attitudes as to the anatomical and physiological disorders. Only with correlation of all such ecologic data can an adequate basis be laid for the continued care of the patient after the acute episode. A second requirement for the hospital is the establishment of an intramural component for continued nonacute care and active rehabilitation, as part of the total resources directly available to the in-patient. Finally, an interdisciplinary consultative team—including at least a specially qualified physician, public health nurse and community-oriented social worker—is needed to assist in establishing routine standards for discharge planning for all patients and to provide assistance in difficult cases.

Standards within the long-term care facilities separately located in the community (or affiliated directly with the general hospital) must be adequate in terms of the specialized function of each type of agency, supported by the fuller resources of the hospital. This requires continuous



joint planning and evaluation, quite specific service agreements, on-going programs of staff education and consultation, and careful sharing of patient care information. Crucial to the success of the cooperative system are the components of an integrated operational plan and arrangements for financing of services which do not provide competitive barriers between various elements of the spectrum. This last double criterion cannot be overemphasized.

Finally, close and cooperative relationships with the physicians in the community and with the public and voluntary health and welfare agencies providing supplementary health services are essential to the effectiveness—and the practicality—of the long-term care continuum.

There is currently proposed for funding by RMP a demonstration project in the New Haven Health Service Area which would investigate the organizational requirements and demonstrate an operational model for such a long-term care continuum. The basic principles are those which have been briefly presented. The setting involves the in-patient and ambulatory services of the Yale-New Haven Hospital (in its role as the major community hospital in the area), two nearby chronic disease hospitals, a sampling of the local nursing homes, and the home health services under the auspices of area public health nursing agencies. Rehabilitation facilities are available both within the hospital and in the com-

munity. The faculty of the Yale schools of medicine, public health and nursing and the professional staff of the Connecticut Regional Medical Program would serve in technical and consultative capacities.

The fortunate combination of an actively interested medical teaching center, a highly cooperative community and a full spectrum of facilities for long-term treatment and care make uniquely possible such an experiment in the rationalization of resources in a local health service area.

The program would include the following elements:

1. An overall administrative structure for planning, coordination of services and evaluation—with participation by the cooperating service agencies, the university and local health and welfare personnel.

2. An interdisciplinary team or teams, headed by a project medical director and based in the hospital—which would serve to provide professional coordination for the overall program and consultation in discharge and referral planning for all participating facilities and agencies.

3. A set of model (but also operational) affiliation agreements among the various agencies—establishing standards and procedures for program participation, transfer of patients, provision of special services, exchange of patient care information, consultation arrangements, orientation and education programs, and comparable methods of recordkeeping and data collection.

4. Development within the hospital of a routine program of discharge planning, a specially designed intramural facility for convalescence and extended care with a strong rehabilitation component, and a qualified staff for continuing education in the principles and practice of comprehensive care of patients with long-term disorders. Special demonstration programs will be developed for patients with heart disease, cancer and stroke.

5. Organization of a home care program, closely related to the hospital and the extended care facilities and set up in cooperation with the existing home health services provided by the area Visiting Nurse Associations.

6. Functional interconnections with the emergency service and outpatient clinic program of the hospital—especially with respect to the medical supervision of ambulatory patients in extended care facilities and home care arrangements. In many ways, the ambulatory care services of the area—including the private practitioners and the newly developing group practice units in the community—serve as the primary agents for continuity of care of the patient in the periods between in-bed care and during the ambulatory phases of residence in convalescent facilities.

7. A continuous education program, using the full spectrum of services—directed toward students of medicine, public health, nursing and

related fields, professional and auxiliary staff, and community agency personnel. As a special aspect of the demonstration, a responsible physician-coordinator on the staff of each participating facility will be supported by expert medical consultation from the central hospital, periods of special training at the hospital, and the assistance of the interdisciplinary team in arranging appropriate health care plans for the individual patients.

It is hoped that the demonstration project will provide both the impetus and the information for the development of similar programs of long-term care in the other local health service areas related to the general hospitals of the region. In this way, the basic components of the regional medical organization can be established, with care of chronic disorders recognized as integral rather than peripheral to such a network.

Additionally, the project could, if successful, create the necessary environment of teaching center—community agency cooperation for the on-going program of graduate and postgraduate professional education envisaged by the Connecticut Regional Medical Program. Interwoven with this would be the component of consultation service which is also projected as a vital part of the regional plan. In turn, these elements of service, teaching and consultation provide the essential foundation for the elevation of standards of patient care throughout the State, which is the ultimate goal of the undertaking.

Finally, this exercise in action-research could provide an effective stimulus to the overall efforts in areawide planning for general health services. A successfully integrated long-term care program would be a directly relevant model for the next higher echelon of regional relationship between the university teaching centers and the general community hospitals, for the acceleration of improvements in long-term care within the other community hospitals, and for the activities within the State encompassed in the companion Partnership for Health program of comprehensive health service planning.

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INVOLVEMENT OF LOCAL HOSPITALS IN THE REGIONAL MEDICAL PROGRAM BY THE APPOINTMENT OF LOCAL HOSPITAL ADVISORY GROUPS

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A unique feature of the Georgia regional Medical Program is the involvement of local hospital advisory groups in the planning and coordination of program activities at the local level. This feature was included in the organizational plan to assure maximum local participation. The local advisory groups represent a new concept in program development which has proved most effective in the Georgia region.

The Georgia plan recognizes that hospitals will have a vital role in the regional medical program and in the future of medicine. A vast majority of the physicians, and a large number of the allied health professionals in the region, relate themselves to one or more hospitals. Therefore, the local hospital has been designated as

a central focal point through which the objectives of the program will be carried out. To complete this setting, the plan provides for the establishment of a local advisory group in each community hospital in the region.

Planning activities did not actually get underway in Georgia until May of 1967 when the permanent staff of the Regional Medical Program was assembled. The first objective was to organize the local advisory groups. Each general hospital in the region was invited to appoint, through acceptable mechanisms, a group of people to represent the hospital and local community in the regional program. As specified in the organizational plan, a physician, a hospital administrator, a nurse, and an interested member of the public were suggested as the minimum number to be selected. It was further suggested that the physician be selected by the hospital medical staff and that he serve as chairman of the group. The administrator would be selected by the senior administrator of the hospital; the nurse, by the organized nursing service, or if such is not present, by the hospital administrator acting jointly with the chief of the medical staff; and the member of the public, by the hospital governing board. The hospitals were encouraged to include in the local group, not only the four members specifically listed, but also any other individuals, especially allied health personnel, who are interested in the regional

medical program. Most of the hospitals followed these suggestions. As a result, the group representing the hospital is, in reality, a local replica of the regional advisory group.

It is planned that the director will call all of the local chairmen together at least twice each year to discuss the progress throughout the region and encourage full development of programs in all areas. The director will maintain frequent communication with the chairmen to exchange information vital to the planning requirements. The meetings of the local chairmen will serve several important functions: (1) They will be an important source of information needed to identify the needs and problems of the region; (2) they will serve as educational forums to explain and discuss the work and objectives of the regional medical program; and (3) they will provide a means of transmitting new knowledge and concepts regarding the overall picture of health care.

The first of these meetings was held in Atlanta on June 4, 1967. This was an organizational meeting to explain the purposes of the regional medical program and to orient the local representatives regarding their role in the planning. At that time the chairmen were encouraged to make preliminary suggestions regarding some of the local needs in the field of heart disease, cancer, stroke and related diseases. The meeting was followed up with a written report to the local advisory group including further instructions

regarding their charge. The meeting was also summarized by the director in the August, 1967 issue of the "Journal of the Medical Association of Georgia."

The initial response was excellent; 88 doctors and administrators, representing 80 hospitals, attended the orientation meeting. To date, as the program enters its second planning year, 121 of the 176 general hospitals in the region have appointed local advisory groups. These represent more than 90 percent of the general hospital beds in the region. The majority of the local groups are active. Specific program suggestions have been received from 26 groups. Most of the others have met one or more times and are awaiting staff assistance before finalizing their reports.

The organizational structure of the Georgia Regional Medical Program is designed so that the local advisory groups relate directly to the regional advisory group and subsequently to the steering committee and central coordinating staff. They relate to all of the agencies and institutions in their area. They also relate to the 14 task forces who are working with the steering committee to develop a broad, general plan for the operational phase of the program. This organizational framework provides a channel for continuous interchange of ideas and recommendations.

The local advisory groups have three principle functions: (1) To advise on local needs and priorities and to suggest possible modifications of

the task force reports which outline the broad objectives of the program; (2) to assist in the development of certain operational projects which involve the local hospital or local community; and (3) to serve as liaison between the Regional Medical Program and the local medical and lay community.

If more than one hospital exists in a community, the local advisory groups have been required to band together and form a metropolitan planning group to consider jointly the needs of the community and combine the suggestions from all of the hospitals in the area into a single proposal for submission to the Georgia Regional Medical Program. If a metropolitan planning agency already exists in the community, the local plans are reviewed and approved by that agency before they are submitted to the Regional Medical Program.

The local advisory groups representing the cities of Savannah, Columbus, and Augusta have already submitted extensive reports summarizing the needs and opportunities in their metropolitan areas. Similar plans are expected soon from the groups in Atlanta and Macon.

The local hospital planning groups will cooperate with the area planning councils set up under the Comprehensive Health Planning Act. Programs will be planned according to the needs of the community. Decisions regarding the proper placement of programs at the local level will be left up to the community itself.

The spirit of cooperation which has developed between the hospitals and the regional medical program, and among the local advisory groups themselves, has been most encouraging.

The regional advisory group feels confident that the method which they have selected to assure maximum participation by both the local hospitals and community is the most effective approach for Georgia. The cooperative arrangements established at the local level will be a vital link in bridging the gap between science and service in Georgia region.

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THE REGIONAL MEDICAL PROGRAM AS A MEANS OF INCREASING THE MORALE OF THE FAMILY DOCTOR

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In attempting to fulfill the goals of the Heart Disease, Cancer and Stroke Amendments (Public Law 89-239) to the Public Health Service Act in Arkansas, it is readily apparent that one of the most serious problems facing the Arkansas Regional Medical Program is that of implementing the law to include those citizens who reside in the large rural, sparsely populated areas of the State. In January, 1965, the President told the 89th Congress: "Our first concern must be to assure that the advance of medical knowledge leaves none behind. We can—and we must—strive now to assure the availability of and accessibility to the best health care for all Americans, regardless of age or geography or economic status."

Arkansas, with a land area of 52,500 square miles, ranks 27th in size among the 50 States. With a popula-

tion of slightly less than 2 million, the State ranks 36th in density of population per square mile. As with other States, the population tends to be concentrated in the more urbanized areas, leaving large relatively isolated rural sections. Of the State's 75 counties, 18 have populations of less than 10,000, and 55 counties have less than 25,000 inhabitants. Sixty percent of the State's population resides in the remaining 20 counties (see table I).

In studying the patterns of medical practice and health care throughout the State, the most striking feature is the marked contrast in the availability and type of medical care obtainable in the rural as compared with the more densely populated counties (see table I).

The number of physicians per 100,000 population varies from 41.6 in the 18 most rural counties to 95 and more than 100 per 100,000 in the nine most populous counties. A survey of the types of medical practice carried on by the physicians in these contrast-

ing areas reveals an even greater diversity (see table I).

In the 55 counties with less than 25,000 population, 85 percent of the physicians are general practitioners, whereas in the other more urbanized counties, 70 to 80 percent are specialists. Additional calculations indicate that 60 percent of the State's 2 million people, residing in 66 of its 75 counties, receive their primary medical care by less than 40 percent of the State's physicians. Eighty percent of the physicians in these 66 counties are general practitioners. It is to these people that the Arkansas Regional Medical Program, in its efforts to assure high-quality medical care within the heart disease, cancer, and stroke categories, is directing particular concern.

The marked increase in the number of full-time specialists and concomitant decline of general practitioners that has occurred nationwide in recent years is well known and the reasons for this are well accepted. As

stated by Prior,¹ "we are aware that the more knowledgeable and effective a profession becomes, the more refined are its means, the more exacting its demands, and the more likely its drift toward increasing specialization." Arkansas, though perhaps trailing somewhat, has followed the national trend toward increased specialization in medical practice and the decline of general practice (see table II).

Family practice is going the way of the corner grocery—it is giving way to the medical supermarket. The problem in Arkansas is that the medical supermarket, wonderful though it be, is located 50, 75, or 100 miles away, and transportation is not always available. Readily admitting that medical specialists, in their urban environment, are absolutely essential to high quality medical care, it is also apparent that they are not a replacement for their general practitioner associates in the next county.

Accepting the inevitability of increasing specialization in medical practice does not preclude the problems created by it. Prior,¹ very succinctly commented that "the pursuit of excellence demands specialization and the pursuit of specialization creates problems." The problem it creates in Arkansas is from the accompanying exit of the general practitioner in the remote areas. His disappearance leaves a void in the personal, continuing medical care of the rural citizen and the small and medium town inhabitant, where gen-

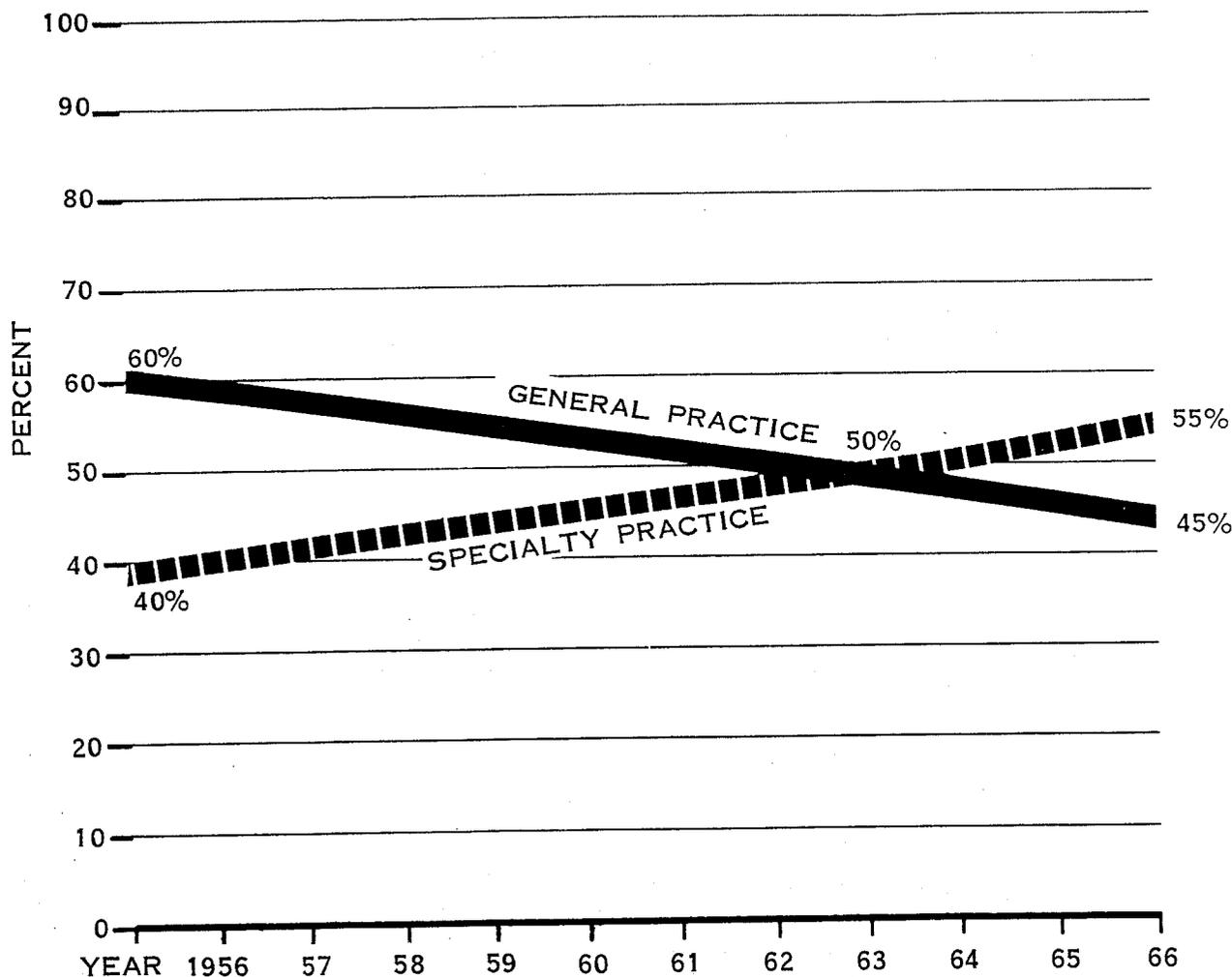
eral practice is the only form of primary medical care available.

The solution to these problems will not come easily. Though this paper may sound critical of specialization for the problems it indirectly creates, it is recognized that the continued growth and effectiveness of specialization is essential to the progress of medical practice. The demands of society have been a prominent factor in medical specialization, and medical education has very effectively answered these needs through the many specialty training programs and the recruitment of almost all medical graduates into the specialties. However, in so doing, medical education has neglected the needs of society for physicians who have the primary responsibility of integrating, coordinating and synthesizing the problems and the health care of the patient and his family. Admittedly, the general practitioner as presently constituted is not sufficiently equipped to perform optimally all of these functions. However, the general practitioner can serve as the front line provider of care, and the primary and continuing link between families in his local community and all the specialized resources of medical care available to him in the area. Serving in this manner, the family physician with consulting specialists and other health professionals in a particular area constitute a health care team which can truly provide comprehensive, continuing and personal medical care. Attitudes of mutual respect and appreciation of role

TABLE I

County population	No. of counties	Total population	G.P.'s per 100,000 population	Specialist per 100,000 population	M.D.'s per 100,000 population (total)
<10,000.....	18	127,300	37.6	4.0	41.6
10,000-25,000.....	37	619,500	46.0	9.5	55.5
25,000-50,000.....	11	364,100	33.0	13.4	47.4
50,000-100,000.....	8	465,400	34.0	61.0	95.0
100,000-200,000.....	0				
200,000 and over.....	1	277,000	26.0	90.0	116.0

TABLE II
ILLUSTRATING THE TREND OF INCREASED SPECIALIZATION
IN MEDICAL PRACTICE AND DECLINE OF
GENERAL PRACTICE IN ARKANSAS



importance are as imperative to such an association as are well used channels of communication.

The dim side of this picture is the slow but progressive disappearance of the general practitioner from the scene, and the failure of organized medicine and medical education to proffer an effective solution. The purpose of this paper is to submit that the regional medical program can have a partial but appreciable effect upon this problem.

The staff of the Arkansas Regional Medical Program is implementing its planning phase. One of the mechanisms being utilized is that of meeting with county medical societies, hospital staffs, and health related groups throughout the region. The purpose of these meetings is to obtain from the physicians and others, who are dealing first hand with problems of patients with heart disease, cancer, and stroke, their ideas and concepts as to how the Arkansas Regional Medical Program can best be of assistance to them. Ideas of merit are springing from these meetings, many of which could be anticipated. However, one particularly challenging concept arose which had not been anticipated by the staff. This was the idea that family physicians in smaller communities can be held there if the professional activities of these doctors can be made more interesting and stimulating, and they can be brought into closer working, communicating relationships as members of the total health care team. It was

COMMUNITY HOSPITAL LEARNING CENTERS

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TABLE III

GRADUATES OF THE UNIVERSITY OF ARKANSAS MEDICAL SCHOOL ENTERING OR PLANNING TO ENTER THE GENERAL PRACTICE OF MEDICINE

Year	Graduates	Graduates contacted	Percent	G.P.'s	Percent
1963.....	77	72	93.5	22	30.5
1964 ¹	72	62	86.1	15	20.0
1965.....	79	75	94.9	11	17.7
1966.....	78	72	92.3	6	08.3

¹ Two 1964 graduates are deceased and not included in total number graduating.

this idea which prompted these investigations and this paper.

One can observe a significant number of physicians (27 since 1964) in general practice in rural Arkansas giving up their practices to pursue specialty residency training. One of the principal reasons for leaving practice given by those who could be contacted was that they had become dissatisfied with the type of medicine that they were practicing; that it had become a frustrating rat race which did not allow them sufficient time to keep abreast medically; and that they felt the need to go back and learn. Financial income was not the major factor in any instance.

This loss of general practitioners in our State, though admittedly small, is of major concern at a time when progressively fewer of our medical school graduates are entering family practice (see table III).

While an untested hypothesis, the concept is that of increasing the

morale of the general practitioners in the more rural areas, through providing them with more sophisticated knowledge and skills, and assisting in the establishment of intercommunicating relationships with consultants and referral centers. We are of the opinion that increasing the morale of these physicians, through the means available to the regional medical program, will have the effect of upgrading the level of their professional activities and in maintaining their interest and feeling of satisfaction in general practice and their desire to stay with it; and perhaps indirectly motivate more young physicians to join them.

This appears to be a worthy objective for a regional medical program.

References

- (1) Prior, M. E.: Specialization and The Pursuit of Excellence, J.A.M.A. 170: 289, 1959.

- (2) American Medical Association: Distribution of Physicians, Hospitals, and Hospital Beds in U.S., vol. 1, 1966.
- (3) Magraw, R. M., and Magraw, D. B.: Ferment in Medicine. Philadelphia and London, W. B. Saunders Co., 1966, p. 144.

Since the time has passed when the practicing physician can be expected to take enough time away from his practice to be adequately involved in continuing medical education, it has become advisable to develop his own community hospital into a center for his continuing educational efforts, and to devise methods of assistance which will make it relatively easy for him to receive needed information.

The concept of the community hospital as a focus for continuing medical education is not new. However, many of the concepts contained within the development of the Albany Regional Medical Program Community Hospital Learning Centers are original. Included are enticing innovations and attractive opportunities for continuous learning, not only by physicians but also by allied medical personnel.

The specific purpose of this project is to establish learning centers within community hospitals partici-

participating in the Albany Regional Medical Program. The educational programs supplied to these centers are designed to assist in the rapid dissemination of helpful information and new knowledge.

The design and configuration of the learning centers are experimental. They are being established either as an integral part of a medical library or are located adjacent to a library. They are to be under the continuous supervision of library personnel. Experience will allow careful evaluation of function and reactions of the learner to the various items of equipment and methods of presentation.

The learning centers will be of three sizes. The smallest unit will be suitable for any hospital with a staff of one to 20 or 30 physicians. The medium-size unit will be suitable for staffs from 20 to 50 physicians, and the large unit for larger hospital staffs.

Each community hospital will be asked to furnish suitable space, lighting, heat, and supervision. In addition they will be required to make an annual contribution of \$800 for the small unit, \$1,500 for the medium-size unit, and \$2,000 for the large unit. The contributions will be used to help assure production of new instructional units on a continuing basis, thus allowing a steady flow of up-dated material into each learning center. Regional medical program funds will furnish most of the equipment and the cost of maintenance.

Equipment and program material

for the various sized centers are as follows:

I. Small Center

A. Equipment

1. Tape player.
2. Transparency projector, 2" x 2".
3. Hand viewer.
4. Cartridge 8 mm. movie projector.
5. Radio receivers, including multiplex reception.
6. Headphones.
7. Filmstrip projector.
8. Question box.¹
9. Media storage facilities.
10. Program index file.
11. 16 mm. projector.²
12. Projection screen.
13. Telephone for dial-access programs.²
14. Chalk board.
15. Bulletin board.

B. Program Materials

1. Audio tapes.
2. Audio tapes with visuals.
3. Motion picture programs, reel and cartridge.
4. Selected programed text materials.

II. Medium Center

All of the equipment and materials supplied to the small center with the addition of a medical juke box and its 160 programs.

III. Large Center

All of the equipment and materials supplied to the medium size center

¹ Daily question answering service.

² Supplied by hospital.

with the addition of a video tape player and associated video tape programs.

IV. Distribution of Equipment

Costs

A. Small Center—\$1,500 from regional medical program 16 mm. projector and telephone service supplied by hospital.

B. Medium Center—\$3,000 from regional medical program hospital contributes \$1,500, 16 mm. projector and telephone service.

C. Large Center—\$6,500 from regional medical program hospital contributes \$1,500, 16 mm. projector and telephone service.

The learning centers are to be supplied with programs from the medical college. During the last year programs have been developed on audio tape, almost all with integrated 2" x 2" transparencies. The transparencies may be viewed on a rear projection screen or by use of a hand viewer.

Almost all of the motion picture programs, whether in the form of 8 mm. cartridge or 16 mm. reels, will be programs obtained from various sources, such as the American Heart Association and the American Cancer Society.

There will be two types of radio receivers. One will allow the receiving of our two-way, open-circuit radio conferences and the other will be a multiplex receiver. The multiplex broadcasts are transmitted on the sub-carrier of the broadcast station. They cannot be heard by the receivers tuned to the broadcast program. The

special receivers, the multiplex receivers, receive the subchannel information. This results in a close-circuit broadcast.

The broadcast receivers will make it possible to record two-way radio conferences and other programs of information presented on the open broadcast circuit. The multiplex broadcasts will allow transmissions which cannot be heard unless the medical college has supplied the multiplex receivers. They will also make it possible to repeat the same program at will, thus making it easier for the recipient to obtain or record the program at times convenient for him. For example, one could have a subject of the day which would be multiplex broadcast on the hour from 12 noon to 11 p.m.

One of our important efforts is to encourage regional medical program participants to contribute needed time, effort, facilities, and finances to the regional medical program effort. The radio receivers in each learning center will be installed in a manner which will allow selected programs to be recorded and thus assist in developing a tape library. If the community hospital accomplishes the recordings, it will not be necessary for the medical college to acquire the expensive duplication equipment which would otherwise be necessary. The saving of medical college personnel requirements would be significant.

The medical jukebox is a unique development. The research and production which is in process is fi-

nanced under a contract with the National Library of Medicine. This is an example of coordinated planning and effort which may allow funds from separate Government programs to be utilized to produce results which are consistent with the purposes of each agency.

The purpose of the medical jukebox is:

1. To engage in research and development of instructional materials for the continuing education of practicing physicians and allied medical personnel. The instructional programs are to be in the form of audio recordings with associated visuals when appropriate to the subject matter.

2. To develop and adapt a record-playing system of automatically selecting the instructional programs and displaying the associated visuals.

3. To evaluate the education potential of the programs produced.

The staff of the department of postgraduate medicine, in association with the Albany Medical College faculty members, select the titles for the programs. In most instances those making the selection are the chairmen of the major departments or heads of subdepartments. We use their vast experience as consultants and individuals who frequently receive patients from family practitioners to aid in the determination of the needs of practitioners. They identify these needs through their observations of the errors of omission and

judgment as evidenced in the patients they have seen in consultation.

In addition, one of our pilot projects, a "postgraduate instruction development panel," will allow a determination of educational and training needs.

Programs designed for the medical jukebox will be developed under six topic categories: (1) Management of situations requiring prompt action; (2) management of infectious diseases; (3) diagnosis of . . . (4) interpretation of diagnostic tests; (5) use of new drugs; and (6) miscellaneous.

How will the medical jukebox function? As mentioned, it is a recordplaying system which has been designed to automatically select programs and display associated visuals. The basic instrument is a commercial jukebox which plays both sides of 80 records. Since these are 33 $\frac{1}{3}$ r.p.m. records, and each side will play for 6 minutes, one medical jukebox contains 16 hours of instruction.

Two dial-access carousel projectors have been added to the jukebox and integrated with the medical jukebox mechanism so that selected programs may be integrated with automatically projected 2" x 2" transparencies. This projection unit can be mounted as a part of the jukebox or with remote control jukebox units. These remote control units are similar to those you have seen in restaurants and some other places you may frequent. They allow the remote control selection of any one of the 160

programs, and since the visual unit may be located either at the jukebox or at the remote control point, the visuals may be used at the jukebox or at the remote locations.

The remote control units will add to the ease of access to the medical jukebox programs. Remote units may be installed at the emergency room, clinics, house officer quarters, nurses quarters, etc. In addition, a remote unit will be available at the telephone switchboard so that telephone connections to the jukebox may be readily established for those wishing to receive programs in their own houses or offices. In this manner the medical jukebox programs are available at any time without the need for any additional personnel.

When the participant is at the jukebox there are other services available. A tape recorder has been installed in each box. If the information sought is not contained within the programs selected, the unanswered questions are recorded on the tape together with the questioner's name and address. These tapes are to be collected frequently and all questions will be answered by mail. Everyone going to the medical jukebox for information will receive the information at once or within a short time.

The tape recorder may also be used to comment on the instructional programs and to make suggestions for additional programs.

The jukebox contains a system which allows the participant to rate the program he has received. At the

conclusion of the program the participant is asked to press one of four buttons marked "very helpful," "helpful," "slightly helpful," or "no help."

We are also working on the possibility of developing a jukebox with an additional motivation, although we are not sure we can develop the contemplated system. The medical jukebox we have in mind would require the participant to place a quarter in the slot before he could obtain a program. Each program would be designed to conclude with a question relative to the subject of the program. Four possible answers would be given and the participant would be asked to select the correct answer. He would press a button on the panel of the jukebox indicating the answer he has selected. If he selects the correct answer his quarter will be returned. The alert participant would never pay for the information. (Gambling laws have restrained us from the consideration of a jackpot.)

The large learning center will include all of the equipment and programs supplied to the medium-size center with the addition of a video tape recorder. At the present time we are using the Ampex 7000. Although we do not plan any extensive production of video tapes, we expect to utilize tapes supplied by the Association of Medical Television Broadcasters, and other carefully selected programs as they come to our attention. Video tape recorders have the obvious advantage of allowing the

participants to view programs at their convenience.

In conclusion, a few words relative to the effect of learning centers. It is planned to have a careful evaluation of function, a record of the individual use of specific programs, and the reactions of the participants to the various items of equipment and methods of presentation. Library personnel will keep an accurate record of the programs and the individuals utilizing them. After an initial period of use it is planned to audit the clinical records of the individual users. This will be done to determine whether or not his use of the learning center affected his approach to medical problems.

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EXPERIENCES WITH A STROKE CARE DEMONSTRATION UNIT

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Mississippi Regional Medical Program

Before October 1967, there were no hospital beds specifically for stroke patients in the State of Mississippi. Now, there are four. There were then and are now no comprehensive rehabilitation facilities.

At the University of Mississippi Medical Center, a major referral center and the State's primary resource for training physicians, nurses, and allied health professionals, only moribund or hemorrhagic stroke patients were admitted to the six neurology teaching beds. Understandably, few of these gravely ill patients survived to be rehabilitated. The surgical aspects of stroke therapy could not be demonstrated adequately. Therefore, a serious deficit existed in all phases of basic stroke management, teaching, and practice.

The deficiencies in the care available to stroke patients in Mississippi are so great and the need for their correction so basic that our regional

advisory group recommended inclusion of a feasibility study of a four-bed stroke unit in the application for a Mississippi Regional Medical Program planning grant. The regional advisory group and the preplanning committees postulated that the overwhelming magnitude of the problem and the prevailing pessimism about its relief called for nothing less than a concrete demonstration of a regional medical program. The feasibility study was envisioned as a teaching device for the region to enhance the competency of practicing physicians and nurses, physicians in training, medical and nursing students, various therapists and technicians, patients' families and others. It was recognized that until such persons can be trained or retrained, little or no improvement in the level of stroke care in Mississippi is possible. Equally important, the unit was planned as a site for devising and testing a model of exemplary care for future expansion into other parts of the State.

Preplanning presumed location of the unit at the University Hospital because of its importance to the provision of health manpower, its geographic location in the State's largest population center and its sophisticated diagnostic and therapeutic equipment unique in nonveteran hospitals in the State. Furthermore, neurologists in Mississippi are on the University Hospital staff and the only physiatrist is at the nearby

Dean's Committee Veteran's Administration Hospital.

We were able to make our point to the review groups and the feasibility study was approved as a part of the Mississippi Regional Medical Program planning grant. The amount of money involved, some \$40,000 yearly, is modest and pays for certain equipment, nursing staff, and the physician supervision but, of course, does not cover costs of patient care.

From its inception, the pilot project has been viewed as a cooperative arrangement among agencies. For example, the University Hospital provides space for the unit. Planning grant funds do not cover construction or renovation so existing facilities were allocated to house our four-bed unit. Here, we arrived at an unanticipated cooperative arrangement. Circumstances permitted temporary use of a suitable area renovated as a shock unit and located near the emergency room. When emergency shock care is required, we cooperate by moving a patient until the emergency has been met.

We expect to move into new, permanent quarters on a seventh floor west nursing unit in the early summer when the unit is vacated upon completion of a pediatric wing now under construction.

The practical matter of operational support for the unit is a second major area of cooperation. As I have already said, the grant does not defray normal hospitalization costs. About

90 percent of the patients admitted thus far are medically indigent and can pay little or nothing toward their hospitalization costs. We anticipate that a small percent will be eligible for medicare or other third party payment but do not expect many to be covered under title 19 when and if it is activated in our state. As a governmental, teaching institution, the University Hospital receives a State appropriation in support of its service beds but this sum does not cover full costs. We estimate that the cost of providing care for our stroke unit patients is now averaging approximately \$47 per day. A total average cost of \$732 per patient has been borne by the University Hospital, to date.

Staffing the unit has presented two troublesome problems, one we might have avoided and a second which we could not avoid. In accordance with our submitted budget, the grant supports three nurses for the demonstration unit when, in fact, five are needed for shift coverage during holidays and weekends. In consequence, the hospital pays two of the nurses. I am reasonably confident that the grantors would have funded five nurses if we had put them in our proposal. The second and unavoidable staffing problem points up the need for the unit. While adequate physician staff is readily at hand on the school of medicine full-time and volunteer faculty which constitutes the hospital staff, nurses especially trained in

stroke management are almost non-existent. When the first patient was admitted to the unit, we quickly instituted an on-the-job training program for nurses. A registered nurse was employed to direct patient care and two licensed practical nurses were hired to begin on-the-job training. Two more LPNs were recruited from university nursing service to begin the training program which includes such fundamentals as skin care, management of a tracheostomy, range of motion exercises, and basic occupational and speech therapy.

Our initial aim in the unit is a concentrated effort toward patients who have sustained acute, non-hemorrhagic strokes within 24 hours of admission and who, through early diagnosis, optimum management, and prompt institution of rehabilitative measures, can be returned to productive life. Our most pressing problem, one we had not anticipated, arose shortly after the unit opened. Its solution, in turn, precipitated another difficulty which we know will remain with us indefinitely.

To begin with, our old established policies of excluding stroke patients who were not moribund or had not suffered massive intracranial hemorrhage had established a pattern for the area. We found that no patients who met our criteria for admission to the demonstration unit were being referred to the University Hospital. We began to wonder if we'd imagined all those 13,000 new strokes we'd been

sure were occurring annually in Mississippi.

On November 9, we sent a concise one-page announcement of the establishment of the unit, printed on Mississippi Regional Medical Program letterhead, to all physicians in the state which comprises both our region and the University Hospital referral area. The purposes of the unit were described and the mechanisms by which a patient could be admitted were outlined. We told them that, in general, a simple phone call from the referring physician suffices to admit a suitable patient if a bed is available in the unit. This single communication produced immediate results and soon we had five to six times as many requests for admission as we had beds in the unit. This overflow of stroke patients continues as an unsolved, and presently insoluble problem. Although private, paying patients are accepted, most of our requests are for admission of the medically indigent who cannot receive care in their local, private hospitals. However, it has been acknowledged from the outset that four beds in the demonstration unit cannot make any appreciable direct contribution to meeting community needs for care.

In somewhat over 2 months, 12 patients have been admitted to the unit and eight discharged. Their average length of stay, including two who did not survive, was 21 days. This table summarizes the courses of these patients.

TABLE I

DISCHARGE CONDITION

2 Unchanged	4 Ambulatory
4 Improved	2 Employable
2 Expired	

A senior medical student and a neurology resident are assigned to the stroke unit. Additionally, each patient is seen by a neurology attending, a neurosurgery resident, an intern, the unit nurses, nurses in certain training programs, speech therapists, physical therapists, social workers, and vocational rehabilitation trainees. The number of individuals in each category who have had an opportunity to follow the average patient and to participate in their care is as follows:

TABLE II

PERSONNEL ATTENDING

8 Discharged patients
Average number of personnel attending each patient:
3 Staff physicians
6 Resident physicians
1 Intern
3 Medical students
4 Registered nurses
2 Vocational rehabilitation trainees
1 Physical therapist
1 Speech therapist
1 Social worker

This total figure becomes even more significant when it is realized that probably few of these health professionals would have been exposed

SYSTEMS FOR COLLECTION AND ANALYSIS OF CLINICAL DATA ON PATIENTS WITH ACUTE MYOCARDIAL INFARCTION

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to experience with potentially salvageable stroke patients prior to the activation of the unit. Further, many of these patients were seen by the entire freshman and junior medical student classes, a total of 162 students. Some of the patients were also presented to speech pathology students from another institution.

As a first step in our plan to extend training in stroke management to appropriate persons elsewhere in the State, a continuing educational program for nurses has been established at the medical center. The three-week practical course in stroke management will be carried out primarily in the demonstration stroke unit but will also involve cooperation with the University Hospital nursing wards and with a local nursing home. The program covers acute care, special procedures for establishing a correct diagnosis, intermediate care, and finally, chronic care of the stroke patient. The first trainee began this course on January 8. Widespread interest has been evinced through the State and a number of nurses have already indicated a desire to enroll.

As an adjunct to training nurses to assist with the chronic care, we are working toward some cooperative methods for educating families in home care, including approved exercise techniques. We think we have the foundation for such a program in an already existing although necessarily limited stroke rehabilitation effort initiated by the Mississippi Heart Association and carried out with State

board of health physical therapist assistance. This phase of our feasibility study has not yet been explored but will come up for early action.

We also foresee a continuing education program in cerebrovascular disorders for physicians in our region in cooperation with other continuing education activities of the Mississippi Regional Medical Program. Our present thinking is that we will invite interested physicians to spend an arranged period of time in the unit and in addition participate in the daily activity of the neurology service.

We have been encouraged by the number of physicians and hospital administrators who want stroke demonstration units in their local communities to train their personnel in the management of stroke problems in the home and in the hospital. Surely such demonstration units would be essential components of community stroke programs, otherwise critically hampered by the lack of manpower competent in the care of the neurologically handicapped. We believe that the data and experience we are accumulating in the pilot demonstration unit will serve as a sound basis for structuring similar units elsewhere.

Because ongoing evaluation represents an important segment of our entire program, we believe that evaluation of the demonstration stroke unit deserves special emphasis. Let me quickly confess that we have found no formula for measuring the quality of medical care. Our alternative, and

admittedly second best approach, will be to attempt to evaluate the competency of those who leave the unit at the time they complete their training. We expect to administer a comprehensive written examination to each nonphysician trainee as he enters and leaves the unit. A running count will be kept on all individuals who participate in the unit and their subsequent location in the State.

We are agreed that unless these students carry back what they have learned to their communities, and use this knowledge, we will have failed to reach our goal. Judging from the keen enthusiasm which even this limited experience has stimulated in everyone involved with the unit, we think we are going to succeed.

In spite of the fact the ideal setting for optimum care of hospitalized patients with acute myocardial infarction has not been documented, the number of coronary care units is increasing rapidly. The studies which compare hospitals with and without units show a lower mortality in hospitals with coronary care units, however there are many uncontrolled variables which dictate this difference. Since there are no existing data systems which will allow objective evaluation of the treatment or assessment of the quality of decisionmaking in coronary care settings, the Intermountain Regional Medical Program is developing a system which will provide a uniform data base on all patients with myocardial infarction who are treated in a coronary care unit. Already the Intermountain

Regional Medical Program has established online computer monitoring of physiologic data on patients with heart disease in community hospitals and the purpose of this report is to outline the system being developed to collect and enter other clinical information such as treatments, complications, blood chemistries, etc. The online physiologic monitoring is operating in four hospitals remote from the central computer but the clinical data system to be presented now is being used experimentally in only one hospital for the purpose of identifying and correcting problems with the system.

In general, we have divided the special information needed on patients suspected of an acute infarction into three categories. The information included was determined by a panel of cardiologists interested in acute cardiac care.

A. *Entry information.*

1. The usual history of symptoms plus the age, sex, race, past history of hypertension, diabetes, vascular disease, and previous myocardial infarctions, interval from onset of symptom to arrival at the hospital, and previous treatment prior to entry.

2. Complete physical examination.

3. ECG.

4. Serum enzymes (SGOT and/or CPK).

5. Presence of any complications either directly or indirectly related to the acute myocardial infarction.

To classify patients for analysis, the

Coronary Prognostic Index of Peel and Co-Workers (modified) will be used.

B. *Sequential data obtained in coronary care settings* will consist of all treatments, procedures, complications, and deviations from expected findings on examination of the patient. A consensus from a panel of cardiologists has been gained as to the specific information considered important to record while the patient is in a specialized treatment setting. Using these data, a system was designed to allow recording and displaying of this information in a form to maintain a time sequence of events of all measurements made on the patient. The data we have included are outlined on the sheet for manual recording and include:

1. Bedside data:

- a. Rhythm;
- b. Heart rate;
- c. Blood pressure;
- d. Central venous pressure;
- e. Ventilation rate; and
- f. Ventilation minute volume.

2. Blood gases:

- a. Oxygen saturation; and
- b. pCO₂ and pH.

3. Blood electrolytes.

4. Fluid balance.

5. Clinical status of the patient by:

- a. ECG;
- b. Serum enzymes;
- c. Estimate of psychological state;
- d. Estimate of central nervous system status; and

e. Estimate of peripheral circulation.

The time of each measurement is recorded as well as descriptive comments about the patient by the physician or nurse. All treatment and procedures which the panel of cardiologists felt might alter the patient's condition are to be recorded as they are done. Also all complications such as arrhythmias, shock, heart failure, etc., are recorded with the time of onset as well as the end of the complications. After the initial bedside data are recorded, the physician is required to enter what he expects the normal deviation for each item to be for that particular patient. Deviations outside of the limit set by the physician are considered an abnormality requiring a comment or decision and recording of new limits which must be entered under the comments column. Also, any treatment requires a statement as to why it was given.

These data will be recorded by two different methods:

1. Manually by physician, nurse, or technician on a special form designed for this purpose. This manual data form displays all pertinent information which is coded and punched on IBM cards by a technician at the end of each day for computer analysis. The data are summarized for each 8-hour period and at any time there are treatments, procedures, complications, or deviations outside of the limits of expected values set by the physician.

2. Directly online with a remote computer station consisting of an alphanumeric keyboard, character generator and storage, television display, and rapid printout. The same information on the manual form can be entered by direct interface between the physician or nurse and the online remote computer station. The computer program for analysis summary and printout is the same for both methods of entry. The only difference between manual recording on the data sheet and direct input to the computer is that the technician and card-punching sequence and delay are excluded with the latter. Information entered directly via the remote station can be displayed at any time on the cathode ray tube and a printout produced at the remote station on schedule as well as at any time it is desired.

The many theoretical advantages of recording and displaying information as outlined here on the patient with acute myocardial infarction in various coronary care settings include the following:

1. A complete and uniform data base on a large number of patients will allow analysis of treatment settings, methods of treatment and other important variables.

2. The clinical information provided will likely stimulate practitioners to engage in clinical research.

3. Reliable base of information on occurrence of events, and responses to procedures and treatment, and in the context of the patient's medical

problems, will assist in making training programs and simulation models relevant to real life.

4. Parallel systems for data collection will allow comparisons of acceptability, cost, personnel requirements, etc.

5. Information displayed in this will allow instant audit of the clinical course of the patient and decision-making skills of the health care team and can serve as the basis for continuing medical education.

6. The quality of care of patients in all coronary care settings in which the form is used will be improved.

Although these advantages have not been documented yet, they seem reasonable considerations at this early stage.

The apparent differences between the manual data sheet and the online computer input are as follows: The manual form can be used for all patients with acute myocardial infarction, the cost and equipment is small, but the potential for error in recording of information and personnel time are high in contrast to the online remote computer station. The direct computer input system is expensive and at present can be only for a small number of patients. It has great potential, however, and the requirements for manpower and incidence of error are low.

C. Exit information:

1. Time the patient spent in the cardiac care unit.
2. Time in the hospital.
3. ECG on discharge.

4. Estimate of the patient's physical, physiologic, and psychological status on discharge.

5. Therapy to be continued after discharge from the hospital.

6. Summary of treatments, complications, etc., while in coronary care units and the hospital.

The uniform data system for patients with acute myocardial infarction to be used in the Intermountain region includes three categories of information:

1. Entry data.
2. Sequential measurements and recordings while in a coronary care unit.
3. Detailed description of the patient on departure.

To make comparisons of various types of settings for treatment will require additional information on the staffing, admitting policies etc., of the unit. The system I have outlined will make the information we do collect:

1. accurate;
2. reliable;
3. in the context of the patient's total problem; and
4. in a form that can be analyzed easily.

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COST-BENEFIT ANALYSES—LIMITATIONS AND USES

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I would like to report on some of the homework we have been doing in trying to apply cost-benefit analysis (CBA) to the problem of the regional medical program (RMP). We understand CBA to be essentially concerned with the problem of choice between projects to fulfill program objectives. In this paper, I am going to concentrate on the central problem of providing unambiguous criteria and data on the priority of one project over another. The question of alternative methods for developing a specific project we consider to be a problem in cost efficiency. This will not be discussed.

In the first section, I have reviewed the purpose of CBA and outlined some general requirements for its rigorous use in decisionmaking. In the second section, I have discussed the limitations of CBA in health planning which occur when these general requirements are not met.

Finally, I have indicated some modest ways in which it may prove useful in developing regional medical programs.

A. *The purpose of cost-benefit analysis.* Cost-benefit analysis has been used to help decisionmakers secure an efficient allocation of resources. It provides a rationale for the investment of dollars and manpower to optimally meet the objectives of a given program. This means essentially that a model must be found which (1) for decisions concerning projects to be undertaken, yields unambiguous criteria on the priority of one project over another and (2) for evaluation provides data related to the criteria which established the priority.

There are three major requirements for effective utilization of CBA in decisionmaking:

1. Program objectives must be defined in terms which are susceptible to analytical assessment.

2. Measurements (or indicators) of the objectives must be identified which (a) are inclusive of all the real issues that determine whether one meets the program objectives and (b) congruently measure costs and benefits, i.e., allow one to quantitatively relate costs to benefits.

3. Decisionmakers must be in a position to respond effectively to the logic and results of the analysis. The more centrally located the power of decision, the more probable it is that this condition can be met.

B. Limitations of CBA in regional medical programs. Each of the above requirements imposes restrictions which limit the usefulness of CBA in developing RMP projects. I would like to briefly discuss them.

In the delivery of health care it seems that objectives must be expressed in terms of the reduction of mortality and morbidity or, where these do not apply, in terms of the efficiency of medical care. Operationally, the regional medical program promotes projects to fulfill these objectives. This activity centers on the problem of choosing which projects to do and how much to spend on them, i.e., which of the many problems in mortality and morbidity related to heart disease, cancer, and stroke are going to be singled out for attack.

To use CBA in making the decision, a criterion must exist which allows the quantitative weighing of the benefits of proposed projects. For example, measures must exist for weighing the relative benefits between a project to prevent rheumatic fever in children and one to improve the nursing home care for patients with completed strokes. This means that a method must exist for expressing a quantitative value to life.

The usual method in CBA is to consider the value of human life in terms of economic productivity: In this analysis, benefit means dollar earnings as a measurement of productive services from the individual to the economy which, because of the proj-

ect, are either reestablished or prevented from being disrupted. The method imputes a dollar worth to an individual based on his current life expectancy and economic function (the latter often indicated by his sex and race). It takes into account varying labor force participation, imputed value for housewife service and a discount rate.

In this evaluation of human life, the health system is considered as a supporting element for a full production economy. The discriminatory elements in this assessment of human worth should be considered: Children, Negroes, women, and the elderly produce fewer dollars than white adult males. Two projects of equal cost and equal results in terms of reduction of mortality, one aimed at pre-school-children, the other at 30-year-old white males, yield different priorities in terms of benefit-cost calculations.

Clearly, Congress did not intend that an objective of the program was to value Negroes and children less than white adult males. The value system implied in the objectives of the program relates to the value of human life but in a way which transcends the value system which assigns a dollar value to producers in the economy. It seems to rest on the notion that equitable medical care is a right of citizenship.

If program objectives cannot be successfully expressed in quantitative terms relative to the producer, can they be defined by the consumer?

Since the key issue is the value of human life, could, for example, a regional plebiscite or poll be held to fix a value to life at different ages (or, if the electorate wished, for different sexes, races, religions, occupations, etc.)? This would place on the consumer the burden of making explicit and highly visible the presently implicit values given to human life by society. Doesn't this again produce a direct confrontation between the concept of health as a right of citizenship and health as a privilege? I suspect the RMP would prefer no part of it.

What we are up against, in the economist's terminology, is the fact that "interpersonal comparisons of utility cannot be established by economic analysis, and yet, to quantitatively evaluate benefits and costs, we must assign a dollar value to life. The value of human life is the basic moral imponderable which precludes a rigorous use of CBA in developing unambiguous criteria for project priority.

Let us assume that program objectives have been expressed in measurable terms. A series of technical problems then arise in developing indicators (measurements) of the objectives. Since these problems are important in any use of the method, rigorous or otherwise, I think they are worth dwelling on.

The major problem is to find or develop indicators which sufficiently measure morbidity. However, the very definition of the word morbidity poses problems: The most general

definition seems to be a series of conditions composed of discomforts and disabilities located on a continuum between the state of death and the World Health Organization's definition of health: "A state of complete physical, mental, and social well-being."

The problem of measuring morbidity is further complicated by the fact that certain diseases give rise to several morbid conditions. Indeed, the alleviation of one condition may give rise to or aggravate another. The development of inclusive indicators for such a disease requires a scheme for measurement, a scheme for quantitatively evaluating one condition against the other and the development of a summary set of indicators of "net morbidity." For cost benefitting against a second disease, the latter must receive a similar analysis and the units of "net morbidity" must be the same.

The requirement to define the types, amounts, and interrelationship of morbidity is a major problem involving a very large research effort. In many instances, this will be beyond the capacity of the RMP. In addition to problems of cost and time, the immediate purposes of the program demand that decisionmaking cannot usually wait for the development of complete indicators.

Mortality and efficiency of medical care are more easily measured. Although there are a number of technical problems (such matters as the validity of cause of death, problems

in cost estimation, etc.), these are usually not insurmountable.

The failure to develop a full set of indicators for morbid states implies that the complete set of issues involved in the objectives of the program are not considered in the analysis. But mortality data alone is usually not sufficient. A caricature may make the point clearer. If mortality experience alone is the criteria of success, senile and incontinent nursing home patients might receive the highest benefit to cost by being catheterized, constrained in bed or chair, and tube fed with a low-cost (but balanced) diet of ground food and antibiotics.

Difficulties also arise in considering costs. In attempting to assign a priority to a project based on a ratio of dollar costs to dollar benefits, we have found that the total dollar cost of a project does not reflect accurately the allocation of resources which it presumably summarizes. That is to say, the relevant market prices of resources do not necessarily reflect their actual costs to the system within which they are allocated. This is most clearly so in the case of health manpower where the allocation of a physician means more than the expenditure of dollars to cover his salary. The scarcity of physicians means that in defining a new project in which he participates, his attention is directed from one activity to another, both of which presumably are related to program objectives. The

costs of this redirection are potentially more than dollar costs.

The realization that there are manpower costs which are not truly reflected in their dollar costs, means from the point of view of a vigorous application of the technique, that a full system analysis of manpower requirements of the health system must be undertaken before cost and benefit implications of the proposed project are understood. Again, from the point of view of time, cost and meeting immediate program objectives, this is an unreasonable demand.

The persuasive power of the analyst over the decisionmaker is conditioned by the degree to which the power to decide is centralized. In an "open system" such as the health field where political and economic power is diffused, the analyst's influence over the decisionmaker is much more difficult to establish. This applies not only to problems in establishing projects his analysis indicates have higher priority, but also to the whole gamut of problems related to promoting systematic planning.

In addition, both technical and moral problems condition the influence that CBA can be expected to have in making project decisions. But the burden of evaluating the relevance of the indicators which can be quantified rests with the decisionmaker. In the Defense Department, it may well be true, as Kermit Gordon has said, that "[cost-benefit] analyses become powerful weapons in the arsenal of persuasion." In the health

system, or more specifically, in the attempt to establish RMP project priority, this weapon is presently far from powerful.

The present limits of the use of CBA in health planning are related to the requirements for their use. They are:

1. Moral limitations due to failure to find appropriate measures for the value of human life which relate to program objectives rather than imputed values from the economic system.

2. Technical limitations due to (a) failure to express project objective in terms susceptible to quantitative assessment and (b) failure to measure for a given project all relevant indicators of program objectives.

3. Political limitations due to diffusion of decisionmaking and the resulting restrictions for effective action on the basis of the analysis.

C. *Uses of CBA.* The above critique reflects the problems encountered in a rigorous or, perhaps better said, a parochial application of CBA. Viewed more liberally as an assist to project decision, an approach using aspects of CBA can be developed empirically over time. Through attempts to make explicit the value of judgments exercised in choosing between projects, the analyst can contribute to an increase in the opportunity for decisionmakers to make informed decisions. However, for the present moment, I think an admonishment of James Thurber applies: "Never cook a rabbit stew until you catch a rab-

mit." Since time will not permit me to discuss here the attempts we are making to use CBA, I have included in appendix form some examples for those of you who wish to see how we are trying to catch the rabbit.

Because of the restricted capability to measure morbidity, in most instances it will be of use in problems related to the efficiency of medical care and instances where mortality experience seems to reflect morbidity experience. I would like to restrict this discussion to three areas related to projects concerning mortality reduction. Benefits have been measured in terms of the dollar value of the producer using the data of Mrs. Dorothy Rice.*

1. The application of established methods for reducing mortality (so called state-of-the-art application). Here, the following is known:

- (a) regional mortality rates;
- (b) the estimated reduction in mortality rates by the project;
- (c) the benefits in terms of economic production by those "saved" by the project; and
- (d) the cost of the project.

With this information, a benefit-cost ratio can be calculated. We have applied such an analysis to our coronary care unit proposal and to a project concerning cervical cytology. The B/C ratio turns out to be, in both cases, about 3.

*Dorothy P. Rice, *Estimating the Cost of Illness*, U.S. Department of Health, Education, and Welfare, Health Economics Series No. 6, May 1966.

OZARKS REGIONAL COMPREHENSIVE CARDIOVASCULAR CARE UNIT

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The uses of this benefit-cost ratio in decisionmaking concerning state-of-the-art application is subject to the several limitations mentioned above. However, it does establish the extent of investment which, under present circumstances, the RMP is making within the region. This we can call our regional bid against mortality. Its use as an indicator of the extent of investment and/or the reasonableness of experimental projects is discussed below. We feel that under present circumstances this is its most promising use.

2. The application of experimental techniques for reducing mortality. Here the anticipated reduction in mortality is not known. However, the reasonableness of the project in relation to acceptable cost-benefit ratios from state-of-the-art applications can be judged if the costs of the project can be estimated. By using an acceptable B/C ratio, the percent reduction in mortality required of the project to achieve the ratio can be calculated. The reasonableness of the project is related then to an estimate of the potential of the project to reduce mortality to that figure.

This approach is helpful in assessing experimental projects in medical care. For example, using the B/C ratio of 3 from the coronary care project, from a preliminary study it appears that \$400,000, an estimated cost for an emergency health system improvement, would require a mortality reduction of present road accident and myocardial infarction death

rates of 7 percent. The project it is felt, could reasonably be expected to result in this reduction in mortality.

3. For estimating the extent of investment to control disease and establishing goals for the investment. Here we are generally talking about preventive programs where epidemiologic data has established the influence of a given risk factor on mortality rates. This allows one to calculate the benefits that would presumably accrue if that risk factor were removed.

A good example is the case of cigarette smoking where, using Hammond's data on relative risk and an estimate of the frequency distribution of smokers and amounts smoked, we have calculated the yearly dollar cost to the Northern New England Regional Medical Program as approximately \$20 million. Using the CBA ratio of 3, this means that \$6.7 million is a reasonable annual investment to reduce cigarette smoking to zero.

Now it seems reasonably certain that this much will not be spent. But it does mean that an investment of \$67,000 would require only a 1 percent reduction in smoking. The job for the region is to come up with a program that has a reasonable chance of doing this.

A second example of an estimate of the cost of illness is a comparison between Swedish and Vermont mortality rates to establish the costs to our region for not living as long as the Swedes. The total cost to Vermont is approximately \$24 million per year.

This can be used as a dollar estimate of the amount of money which could be economically spent to bring Vermont's mortality rates in line with Sweden's. Since Swedish mortality rates represent the present world state-of-the-art, presumably with time, ingenuity, and investment, we can approximate their experience. This analysis simply points out a dollar estimate of the amount of money which would be economically spent to bring Vermont mortality rates in line with Sweden's.

Summary: We have found CBA to be of some use in—

1. Choosing between alternative projects which use established methods for reducing mortality.

2. Establishing the reasonableness of experimental techniques for reducing mortality.

3. Estimating the extent of investment to control disease.

What originally began as the planning of a comprehensive cardiovascular care facility in a single Springfield hospital has developed, with Missouri Regional Medical Program as the catalyst, into a full-fledged Ozarks region attack on heart and blood vessel disease with, hopefully, some national consequences.

The basis for the original proposal to Coordinator Dr. Vernon E. Wilson and Director Dr. George E. Wakerlin was the highly successful development and operation of a 40-bed progressive cardiovascular care unit in the 450-

bed St. John's Hospital* in Springfield, Mo. Similar activity developed in the two other local hospitals, Burge-Protestant and Springfield Baptist.

This 120,000 population city is in a trade area of 600,000 in the Missouri-Arkansas Ozarks. Metropolitan centers average 200 miles away. Springfield hospitals are without house staffs. Intensive care facilities in St. John's were established in 1960, with a gift from the Ladies' Auxiliary of \$12,000 for the purchase of monitoring and other electronic equipment. Gifts now total \$32,000.*

On advice from pioneer Dr. Hughes W. Day of Bethany Hospital, Kansas City, Kans., the intensive care area was expanded to 13 beds—seven for cardiovascular care, including heart attack, and six for general medical-surgical needs. When adjacent beds for transfer of patients out of intensive care into intermediate and convalescent care zones became necessary, the remainder of the 40-bed hall was restricted to cardiovascular patients by rigid admitting policy. With this system, patients could be admitted direct to any area of this cardiovascular division and shifted within it as their condition required.

Heretofore such patients had been scattered about over the hospital wherever beds were available, making specialized nursing care and special equipment inaccessible. This extremely successful comprehensive

type of service was put into effect in 1965, after census figures indicated that perhaps there were, on one day, as many as 75 high risk cardiovascular patients who would benefit from grouped, specialized care.

With building expansion being contemplated, those active in the unit made a recommendation that a much larger, more complete unit be built into the new addition.

At this opportune time Missouri Regional Medical Program came into being and catalyzed regional enthusiasm through the award of a \$67,621 planning grant that led the Sisters of Mercy to agree to early construction of a five-floor addition* which would incorporate a 75- to 100-bed comprehensive cardiovascular care unit on one floor.* This component was to cost an estimated \$2 to \$4 million. The grant was primarily for planning a model demonstration unit, but it triggered regional activities that promise greater reward than the building of any one single facility.

The planning and ultimate operation of the unit itself would require broadly based community action involving hospital administrators and boards of trustees, auxiliaries, local and State health departments, medical records, architects, engineers, physicians, nurses, patients, and taxpayers.

Mobilizing this great team started with successfully clearing the project through the local and State heart associations, hospital staff, medical society, hospital board, and auxiliary, to

name a few. Not only was this an informational program, but it enlisted the participation of these same groups as well. Interest in improving cardiac care was found to be universal.*

A project staff was selected and is still growing, with administrators, nurses, architects, engineers, heart and cancer executives, and physicians from the specialties of internal medicine, radiology, general surgery, cardiovascular surgery, anesthesiology, and psychiatry. Such a potent team has rarely before been assembled.

The experienced members of this staff formed teams representing all these fields to study leading cardiac units over the Nation and have now visited Bethany, St. Luke's and research hospitals in Kansas City;* Presbyterian and Germantown Hospitals in Philadelphia; Peter Bent Brigham Hospital, Boston; St. Vincent's, Toledo; Riverside, Newport News; Miami Heart Institute and Mercy Hospital, Miami; Broward General Hospital, Fort Lauderdale; Northwestern University Hospitals, Chicago; Methodist and St. Mary's Hospitals at Rochester, Minn.; St. Luke's at St. Paul; Sisters of Charity, Buffalo, and Cedars of Lebanon, Mount Sinai, and Los Angeles County General Hospitals, Los Angeles. A visit to the Duke University Hospital at Durham, N.C., will follow. Over 1,000 color slides have been made during these visits to illustrate the good and the undesirable features.

The vast store of information derived from these inspection trips is

now being organized for later retrieval by committees dealing with the various components of the project, including equipment, angiography, statistics, nurse and physician education, physical design and furnishings, cardiopulmonary laboratory and pulmonary therapy, and psychological aspects of cardiovascular care. An excellent medical records staff is making a statistical study to determine bed needs and measure success of treatment, with close cooperation of the University of Missouri staff, including Dr. Don Lindberg, director of the medical computer program there.

The newest addition to the project staff is a committee concerned with psychological aspects of cardiac care, with three psychiatrist-members who contemplate critical analysis of patient reactions.

A workshop for review of the assembled data will be held in March. Consultants will be brought from over the Nation for this conference before architects are given specific direction in final design. Construction will begin in late 1968, and will be completed during 1970.

A tour of the Nation's cardiac care facilities must begin with that of Dr. Day of Kansas City.* He started in modest surroundings, indeed,* but with excellent equipment.* This amount of gear was later found unnecessary for other than research units.* It was with this elaborate apparatus, however, that Dr. Day made important contributions to the re-

*Slide.

markable discovery that heart stoppage could not only be predicted and treated but could also be prevented by early attention to rhythm disturbances.

Dr. Day provided early a pleasant lounge for anxious relatives.* He has more recently emphasized that mental confusion can be diminished by placing a clock and a calendar in each patient's room.*

Another true pioneer, Dr. Lawrence Meltzer, in his research unit at Presbyterian Hospital, Philadelphia,* has shown that adequate personnel and equipment in very modest quarters can be highly effective in developing treatment programs.

Among the newer units, attention might first be directed to German-town Hospital where Dr. John Helwig has established a beautiful unit with monitor scopes* which show EKG patterns so clearly they can be recognized from 20 feet away.

What is said to be the Nation's largest monitoring layout is at St. Vincent's Hospital, Toledo, where there is presentation of the EKG of each patient at a nursing station console* and also on large monitor scopes visible from down the hall. A unique feature there is care of the cardiac patient with infection who requires isolation, with an alcove immediately upon entering the room* for gowning and washing which removes clutter from the hall. Also reducing hall clutter is an alcove* for cart and wheelchair storage.

The most beautiful facility of the

Nation is at Riverside Hospital, Newport News. The interior of the 14-patient round unit is delightful* with glass-enclosed and curtained-rooms.* Within the central nurses' station are banks of monitors showing each patient's EKG. However, a nurse sitting here cannot see over the counter into the patient's room.* The very pleasant room arrangement with a window for each patient is noted,* but there is a lot of equipment projecting into the room.

At Broward General Hospital, Dr. Henry Cooper has a defibrillator at each bedside—saving that precious fraction of a minute necessary to cart a defibrillator to the patient.

At the Cedars-Sinai Medical Center in Los Angeles, emphasis is on personnel and training. Shown here* is Miss Joan Epstein, who intensified the entire coronary care movement there by successfully defibrillating actor Peter Sellers 15 times. This triggered community support for equipment. Actress Dorothy Malone was treated in this intensive care unit before and after her life-saving pulmonary embolectomy. A famous nursing figure at the Cedars-Sinai Center—probably the most prominent in the Nation in cardiovascular nursing education—Miss Dorothy Wheeler*—is shown here with another pioneer, Dr. Eliot Corday.

The wisdom of careful planning, even though at considerable expense, is exemplified at the Miami Heart Institute* where one of the first specially-designed cardiovascular care

units was established. It is still one of the best.

At Mercy Hospital, Dr. Tom Noto* has shown that coronary angiography* can be introduced on a relatively modest budget.

One now comes to probably the best integrated coronary care facility in the Nation, created by Dr. Lewis J. Young at the Sisters of Charity Hospital. Among numerous innovations is the recessing and flush mounting of bedside monitors* in the acute coronary care unit. Another is outstanding telemetry in the intermediate care zone for the radio transmission of the EKG of the semiambulatory patient. He wears a portable transmitter, shown here* with the compact receiver which feeds the EKG into monitor scopes at the nurses' station.* Outstanding taped* and televised* nurse-and-patient-instruction programs have been developed by Dr. Young for repeated use.

A preliminary report concerning recommendations has been submitted to Dr. Paul Yu, chairman of the National Coronary Care Unit Planning Conference, held in Washington in June 1967. This report emphasized certain features not previously highly publicized, as follows:

1. It is the feeling of the Springfield group that wide publicity should now be given to the wisdom of adopting a broader concept of cardiovascular care unit planning. The highly successful coronary care unit movement is most rewarding but it is felt

that all high risk heart and blood vessel patients should be grouped together and accessible to specialized nursing care and equipment.* These include those with pulmonary embolism, thrombophlebitis, congestive heart failure, arrhythmias, patients with coronary disease requiring general surgical procedures, and possibly, strokes. This grouping concept is applicable in almost any hospital. Creating units which are restricted to heart attack alone actually fragments the effort.

2. Units should contain contiguous areas for surveillance of the uncomplicated heart attack patient, intensive care of the cardiac patient with complications and intermediate and convalescent care. Such an ideal progressive care system is rarely seen in existing units.

3. Ancillary facilities, such as the department of electrocardiography, inhalation therapy department, pulmonary function laboratory, and adequate mobile and, ideally, image amplifier X-ray equipment should be in the unit or adjacent.

4. Patient costs can be held down by training licensed practical nurses, nurse aides, and technicians, rather than relying exclusively on graduate nurses. This is more easily accomplished where cardiovascular divisions are established, facilitating on-the-job training through grouping of personnel. This also gives better backup of help for any overloaded component.

5. Restful relatives' and nurses' lounges are mandatory.

6. Nationwide recruitment of equipment funding sources, particularly hospital auxiliaries* and civic groups, would enable many hospitals to establish life saving units with a more reasonable room rate.

7. More should be done to reduce the emotional trauma of acute cardiac illness. Recessing gruesome equipment and the provision of windows are planned in the Springfield unit by a unique sawtooth round design.*

8. Bed needs should be more accurately determined—most units are too small, especially as it is learned that more high-risk cardiacs profit from grouping.

9. Portable chest X-raying in cardiac units should be greatly increased, particularly with sitting PA techniques to detect fluid retention early. Special equipment and wiring is desirable.

10. Consideration should be given to possible feasibility of coronary angiography in selected institutions.

11. Greater liaison with surgeons is urged because they make valuable allies in the modern total care of the cardiovascular patient.

Ancillary features of this program, which may prove to be more important than the building project itself, are manifold. First, a highly effective public information program was developed starting with information about the project proper which brought about unprecedented news

media interest. This began with the visit of Dr. Wakerlin to our medical society,* an early press conference concerning the project,* and informational programs presented to a number of civic groups* in the area.

Newspaper, radio, and television coverage of these presentations has been excellent, and the project is extremely well known in this 600,000-population area. A press dinner was recently held, with the top news and editorial staffs of the newspapers, both television stations and all radio stations attending and remaining for 4 hours.

A second feature of the public information program, concerning risk factors, has been intensified by the excellent news media coverage with particular emphasis on tobacco,* exercise,* diet* and hypertension.* Resultant interest led to a program of earlier detection of heart disease through increased awareness of benefits from treatment and by greater knowledge of the actual symptoms of cardiovascular illness.* Teaching people by means of mass communications the early warning signs of heart attack has appeared to probably be very feasible and effective, based upon a very limited and incomplete initial effort.* The Missouri Heart Association has submitted to Missouri Regional Medical Program an application for a pilot project concerning mass communications dissemination of these early warning signs. This is the first such effort in the Nation.

Since 250,000 of the total 600,000 annual heart attack deaths occur before the patient reaches the hospital, it is possible that such a program,* if effective and if nationally applied, might be of more value than the saving of the 50,000 to 100,000 lives by improved treatment after arrival at the hospital. A newspaper series concerning special cardiovascular topics is planned, hopefully to continue on a year-round basis.*

The 15 area hospitals have been encouraged to participate in this program and six of these have now requested assistance in planning such units as are feasible within their environment. An Ozarks regional advisory committee to heart, cancer, stroke, and related diseases has been appointed by the medical society to give approval to projects as an area planning device. Physician education is actively progressing; it is to include a 1½-hour symposium at the March 1968, annual meeting of the Missouri State Medical Association. The first annual Code Blue Review, a 2-day course in intensive cardiovascular nursing, was presented in May 1967,* with over 300 statewide registrants. This was the largest, and said to be the most effective such presentation ever given in Missouri.

For the last few years a weekly 1-hour class for nurses has been conducted at all three Springfield hospitals. These classes have provided training for the nurses who staff the local units. Ultimately, nurses from

hospitals outside the city also will attend.

To sum it up, the key to this gratifying project has been the refinement of communications techniques, in the forum provided by regional medical programs, at the office, hospital, community, regional, State and national levels, to bring about better application of known methods of cardiovascular treatment.

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DATAPHONE ECG CONSULTATION: A MODEL FOR EXTENSION OF MEDICAL CENTER SERVICES TO COMMUNITY HOSPITALS

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Beginning in November 1963, the Creighton University Cardiac Center at the Creighton Memorial St. Joseph's Hospital has offered long distance electrocardiographic interpretation services to community hospitals in the Plains States. The center is under the direction of Richard W. Booth, M.D. From its beginning with two affiliated hospitals in November 1963 the network now includes 38 stations in eight States. The network reaches from Baker, Mont., and Gillette, Wyo., on the west to Peoria, Ill., on the east, and from Chamberlain, S.D., on the north to Wellington,

Kans., on the south. These include 34 community hospitals and four stations located in physicians' offices.

The DataPhone* method of transmitting ECGs is basically quite simple. The ECG machine at the patient's bedside in the remote station is attached to the patient in the normal manner. By alternate means (described later) the ECG machine is then connected to a DataPhone data set on which the number of the Creighton Cardiac Center is dialed. At the center the DataPhone converts the signal transmitted over an ordinary telephone line into impulses that activate compatible ECG machines in exactly the same manner as if connected directly to the patient. The resultant ECG is then mounted in the normal manner and collated with any previous records on that patient for interpretation. All ECGs transmitted during a day are interpreted and the results telephoned to the transmitting station by 5 p.m. of the same day. If the referring physician requests an immediate interpretation, the records are assembled, the ECG is interpreted and the results transmitted immediately.

The Nebraska-South Dakota Regional Medical Program is interested in this program for several reasons that are perhaps obvious:

(1) To our knowledge, it is one of the largest technically-assisted

*DataPhone is a registered trademark of the Bell System.

ECG interpretation networks in the country.

(2) It is one of the few existing models in the region of an established, on-going extension service by a medical center to community hospitals.

(3) The factors influencing its growth and acceptance will have implications for the development of other programs related to the objectives of regional medical programs.

(4) It has established relationships with community hospitals and physicians that will permit the generation of hard information about the wants and needs for community health services that can be satisfied through regional medical programs.

It is reported here for these reasons, and also because it may serve as a model for other regions where such services are not available.

As a consequence of this interest, the Nebraska-South Dakota RMP, through its planning grant, is financing a survey of the service system with the following stated objectives:

(1) To assemble and present pertinent data regarding the growth and utilization of the DataPhone ECG service since its inception.

(2) To determine the extent to which the DataPhone ECG consultation system is satisfying the needs of the participating hospitals.

(3) To identify the factors that determine whether or not a physician utilizes the available services.

(4) To discover possible areas of dissatisfaction with the service, or elements of the service.

(5) To determine what other needs of the community hospitals might be served through an extension of this system.

The study includes an analysis of the records in the cardiac center, a statistical description of hospitals and communities served by the network, and depth interviews of hospital administrators, medical staff officers, and ECG technicians.

This report is based on some very incomplete results from this survey.

With two exceptions, the hospitals comprising the DataPhone network are small, ranging from 18 to 110 beds, and averaging 44 beds. The two exceptions are larger facilities that utilize the DataPhone service primarily for "stat" services. To avoid distortion of the purpose of this paper, data will generally be confined to the 32 typical hospitals.

In addition to being small, the DataPhone hospital is relatively remote. Only one is located in a community with two hospitals, and the next nearest hospital may be as many as 50 miles distant, with the average distance to the next hospital 28.6 miles. One hundred and sixty physicians serve on their medical staffs—nearly all in family practice—with an average of five per hospital.

It was thought to be interesting, and perhaps significant, to assemble some information about the communities these hospitals serve. According to U.S. census data (1960) the counties in which these hospitals are located range in population from

25,000 down to 2,700, and average 11,400. The population tends to be about evenly divided between urban and rural. Two hundred and twenty-one physicians practice in these counties, ranging from 36 per county to one per county, and averaging 6.9. The physician/population ratio averages 1:1650, with extremes from 1:700 to 1:7900.

The population served tends to be an older group, with 28 of the 32 hospitals in the survey serving communities with a higher percentage of its population over 65 than the average for the State in which it is located. They tend to be somewhat less well educated than the rest of their State's population, and also fall in the lower income groupings. The median family income in 30 of the 32 counties was lower than for the State as a whole, ranging up to as much as 45 percent lower in one instance.

To recap, on the basis of available records, "profiles" of the DataPhone serviced hospital and the community it serves tend to emerge:

The hospital:

Has 44 beds

Is the only hospital in the community

Is 28.6 miles from the next nearest hospital

Has a medical staff of five physicians in family practice.

The community it serves is the principal city in a county with:

A population of 11,400

Seven practicing physicians

A physician/population ratio of 1:1650
13.4 percent of population over age 65

An adult population with 10.5 years formal education

A median family income \$1,200 below State as a whole.

We next turned to a study of utilization patterns of the service. A tabulation from records reveals that during the latest available 12-month period (December 1966 through November 1967) 137 of the 160 physicians on the staffs of network hospitals utilized the service at least once, and most with some regularity. In 19 instances, every member of the staff has used the service at least once. During the same period, the monthly volume of DataPhone transmissions increased from 680 per month to 991 per month.

Since five hospitals were added to the network during that period, it seemed important to define the utilization patterns of hospitals once they are affiliated with the service. Twenty-three hospitals have been on the network continuously for 24 months or more. All transmissions were tabulated by month for each month the hospital has been on the service, and the pattern during the first full 12-month period was compared with the last full 12-month period.

Fourteen hospitals increased their utilization during the last year over the first year, and nine decreased. The range for those showing an increase was from 10 to 265 percent, with the median being 32 percent. The range for those showing a decrease was from 8 to 80 percent, with a median of 28 percent. The total in-

crease in service to those 23 hospitals was from 6,208 interpretations during the first 12 months to 7,442 during the last period.

No attempt has yet been made to establish the reasons for utilization patterns in individual hospitals. However, it is probable that decreases have often resulted from more judicious use of the available service. By the same token, the advent of Medicare and utilization by more members of participating hospital medical staffs probably account for the increases.

Three hospitals dropped out of the network shortly after initiating service, and one started, stopped, then started again, with a present history of 23 months continuous service. Of those that dropped, the suggestion is strong that service was initiated by the hospital without adequate acceptance by the medical staff.

Costs and essential components in the establishment of such a service should be of interest.

The hospital joining the network needs an ECG machine that is adapted for DataPhone transmission. New machines can be purchased already modified for DataPhone use. Machines can be internally coupled or acoustically coupled. The hospital must provide uninterrupted telephone service at the point of origin, either as a private line extension at the patient's bedside or from wall jacks in the hall, and, of course, adequate long-line service from the community to the receiving center must

be available. Costs include approximately \$25 for adaptation of ECG machine (if not a new one), \$25 for purchase of a chest lead switch box, and rental of the DataPhone data set at \$12 per month. Transmission costs are at the regular long distance station-to-station rates, and most routine transmissions can be completed within 3 minutes. Direct-dialing service is available to most hospitals. Hospitals report budget relief is offered through elimination of the need to type reports on charts and the need to maintain ECG files in their lab.

At the service center the needs are perhaps obvious: Dedicated telephone lines to handle incoming calls, an ECG machine modified to accept the DataPhone signal on each incoming line, technicians, and available cardiologists.

At our center, we currently average about 35 transmissions per day with peak days (Mondays) and peak periods each day (10 a.m.-12 noon and 1-2:30 p.m.). Two technicians are required full time, plus minimal secretarial time each month for billing purposes. Three members of our cardiology section have receivers and ECG machines in their homes to permit 24-hour per day, 7-day per week service to subscribers. The volume of service at present requires approximately 3 to 4 hours per day of cardiologist time for "stat" and routine interpretations.

While we have only barely begun the depth interviews of personnel at the remote stations, certain tentative

EXPERIENCE WITH THE WAMP MOCK-UP CORONARY CARE UNIT

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conclusions can be drawn. With less than a dozen cardiologists in the region—nearly all in university medical centers—and with the vast distances involved, the service has generally appealed to smaller, remote hospitals who otherwise have had to rely on less well-trained personnel or relatively-slow mail processes for interpretation of ECGs. Subscribers are generally satisfied with the speed and accuracy of the service, although once accustomed to same-day service, pressure increases for faster communication of results. Geographic remoteness apparently has not resulted in a feeling of “impersonality” with respect to the service. In many instances it has been necessary for the subscribing hospital to update its telephone service within the hospital, as well as its ECG equipment.

The major problems that have arisen often stem from inadequate skills of the hospital-based technician originating the transmission, and the physicians' knowledge of what to do with the information he has requested and received. In the former case, this has required provision for training and retraining of the local technician at the cardiac center. The latter circumstance presents a substantial challenge to programs such as RMP.

Time does not permit an extended discussion of the implications for expanded services with the assistance of RMP. Significant expansion of the ECG service, as well as the range of additional services that might be offered, undoubtedly depends upon

computerizing some functions. Utilization of computers for initial ECG reading is now under consideration by the staff of the Creighton Cardiac Center, with computer rental costs, the further development of ECG interpretation programs, and technical problems of data acquisition from outlying hospitals being the major barriers. The network certainly provides a natural base for a cooperative and mutually-advantageous relationship in providing support services for small coronary care units now being considered by a number of the subscribing institutions. Natural opportunities include education of physicians, nurses, and technical personnel; advisory services at the planning stage; an information exchange, and equipment maintenance. Also possible—but perhaps more distantly—might be computerized on-line monitoring on an intermittent basis for smaller units, as well as closed circuit TV as a substantial instructional aid. In addition, some interest has been displayed in the possibilities opened up with the newer electronic technology, including the transmission of X-rays, electroencephalograms, laboratory data, and pharmacological information.

In summary, this paper has described the services offered community hospitals by the Creighton University's cardiac center, and developed profiles of the hospitals utilizing the service and the communities they serve. It has described the history of utilization of the service by sub-

scribing hospitals, and reviewed the essential components and costs involved in establishing and maintaining the service. Brief discussions were offered regarding the appeal of this type of service and possibilities for either geographic or scope-of-services expansion. It is the authors' conclusion that it represents a solid base upon which the objectives of regional medical programs can be further realized.

The purpose of this paper is to describe our experience with a mockup coronary care unit (CCU) as an important component of CCU training programs.

An RMP survey in mid-1967 revealed that there are currently 24 hospitals in Washington with coronary monitoring facilities (“CCU's”) and there are at least 55 more hospitals in Washington and Alaska with plans for such monitoring. Thus, the already great burden of training nurses for these units will become even greater in the very near future. The need for coordination and quality control is evident in the face of a great number and variety of nurse training programs in our region, and with tripling of the number of CCU's in Washington and Alaska, the need for coordination and quality control will be all the more important.

One of the great difficulties in all training programs to date has been

the transition for the nurse from didactic material to clinical responsibility—a transition from a relatively passive role to an active, action-oriented role with living patients. Simply knowing what has been taught is not sufficient: the nurse must be able to reach decisions rapidly and be able to take appropriate action with learned skills, such as required for defibrillation. Such decision making and technical ability requires practice and this is the primary reason for a mockup CCU—to provide practice by simulating emergency conditions in a realistic setting.

As part of an effort to coordinate and assist CCU training programs in Washington and Alaska, W/ARMP has coordinated the development of a mockup CCU for use by these programs, including initial and refresher training courses. The unit is also intended to familiarize nurses, physicians, hospital administrators, and others with the components and operations of a CCU and to educate the general public on coronary risk factors and new methods of coronary care.

The mockup unit was constructed and furnished as a cooperative project involving the Washington State Heart Association, the University of Washington Schools of Medicine and Nursing, manufacturers and supply houses, and the Pacific Science Center, where the unit is located. With the generous contribution of space and considerable assistance

from the Pacific Science Center, it was possible to construct the mockup CCU for less than \$3,000, compared to an estimate of \$14,000 for remodeling costs (removing walls, etc.) to put the unit in a building adjacent to one of the hospitals in Seattle. The science center has proven to be an ideal location for the mockup unit. There is easy availability from all hospitals in the greater Seattle area, and from downtown hotels by monorail and other transportation facilities.

Value of equipment used to date is approximately \$9,000, though over half of this has been contributed on a loan-without-charge basis. Particular appreciation is expressed to Physio-Control Corp. (Seattle) for contribution of electronic equipment for the mockup unit (see table 1).

To date, three classes, with a total of 41 nurses, have used the mockup unit as part of the Public Health Service 5 week training program administered by the School of Nursing of the University of Washington. In this program there are 60 hours of didactic material, 60 hours of clinical tutorial experience, 20 hours of private study, and 60 hours of training in the mockup unit. It is seen that as many hours are used in the mockup unit as are used in the clinical tutorials. It is possible to have larger groups of nurses in the mockup unit and to carry on more active discussions and practice of procedures than is possible in operating clinical units.

The mockup unit is used to introduce the nurses to basic components

TABLE I

EQUIPMENT FOR MOCKUP CCU

Patient scope with pacemaker and rate meter modules
 3 central monitor scopes with rate modules
 DC defibrillator and synchronizer
 ECG recorder
 Critical time alert clock
 2 ECG cartridge loading tape units (Tutorscope) and 12 cartridges
 Electronic ECG-simulator (Polyrhythm)
 Electric bed with patient and nurse control switches (Borg-Warner)
 Bird respirator
 Ambu bag
 Patient dummy (Resusci-Anne)
 Nurse desk
 Bedside stand
 Accessories (cables, wallplates, etc.)

A drug and resuscitation cart, rug on the floor, audiovisual aids, and exhibit placards are to be added in the near future to complete the development of the mockup CCU.

and concepts of a CCU, allowing them to gain confidence in working with electronic equipment in a realistic setting.

As shown in the series of slides, clinical conditions are simulated by selecting ECG disorders on the electronic ECG simulator (Polyrhythm) or by loading tape cartridges (Tutorscope). The physician or nurse instructor plays an active role in this simulation by describing clinical situations and asking questions while the nurse makes decisions and responds with appropriate actions, such as drug selection or mock-defibrillation.

We have found that this type of training, with actual physical involvement and simulation of real-life experiences, has been an important intermediate between lectures and discussions on the one hand and real-

life experience in an operating coronary care unit on the other.

We have used Resusci-Anne for training in cardiopulmonary resuscitation in the mockup coronary care unit, but we have also found that having volunteers in the bed has provided useful realism in the simulation of emergencies. With a male volunteer the nurses are able to practice electrode placement and nursing procedures while monitoring his ECG and that of simulated patients whose ECG's are displayed on the other two central monitor scopes.

We have not carried out actual defibrillation in the mockup unit but instead have given trainees this experience using anesthetized dogs in which ventricular fibrillation is produced by low wattage AC shocks. A computerized dummy for defibrilla-

tion such as described by Spivack and Miller (JAMA, 202:299-301, Oct. 23, 1967) would undoubtedly be an addition to the mockup coronary care unit training program.

From the instructor's point of view, the mockup unit has been useful for bringing theory into practice and for helping to evaluate a student's competence in some of the new skills in CCU nursing. If problem areas are identified, further practice drills are used to build up the student's competence and confidence prior to actual clinical experience. All students and instructors who have used the mockup unit have felt it was a valuable part of the total training program. It has not been possible to date to carry out more precise and objective evaluation of the effectiveness of this part of the program. Different courses throughout our region vary in length, content and quality such that comparison of those not using the mockup with those using it is not valid. On the other hand, the mockup unit can be used to evaluate the effectiveness of these different training programs, by testing performance of nurses from them.

The mockup unit will play an important role in evaluating the effectiveness of new instructional methods (films, computer-aided instruction, etc.) which are to be developed and tested by W/ARMP operational projects.

Training programs for physicians and demonstrations for the general public are currently being planned.

Training of paramedical CCU technicians, with specific responsibilities for monitoring and emergency actions only, is being considered.

Teaching aids will be made available to hospitals remote from Seattle in order to assist their instructional and inservice review programs.

The mockup CCU, developed as a cooperative project, will continue to serve as an important focal point for cooperation among various CCU training programs using the unit. The unit has proved effective in introducing nurses to CCU concepts and in providing practice in decisionmaking and specific learned skills. Continuous evaluation of students during training programs allows instructors to focus on students needing special assistance, and provides a type of quality control by assuring a minimum level of performance in simulated problems before the student assumes actual clinical responsibility. Further development of the unit is in progress and programs for physicians, paramedical personnel, and the general public are being planned.

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NURSING IN THE REGIONAL MEDICAL PROGRAM: ALLIANCE FOR BETTER CARE

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In contemporary health care the role of the nurse is one of involvement as well as leadership in the planning and delivery of health services. Nurses must give attention to the ever changing and expanding knowledge and technology that can be realistically learned, disseminated, and utilized in influencing nursing care in the steadily expanding health services for an increasing number of recipients. Developments have continually extended the nurse's responsibilities and created a need for new types of educational programs. Indeed, a big gap exists between the experts and the practitioners in some fields of nursing practice. Concerted effort is needed to eliminate or at least reduce this fissure and ultimately improve the status of our present health care. Yesterday's knowledge is relevant to only a few of today's problems. Our traditional ideas of education are being changed by this elec-

tronic age. Not only is the nature of the learning process being examined in view of our new technologies, but the role of the teacher and the classroom as well.

Throughout the country housewives, secretaries, engineers, businessmen and a host of others are participating in a variety of educational programs. This is the age of adult education. Learning is a constant process and nurses, too, need to continue in professional development since continuing education does not end with the acquisition of a baccalaureate degree in nursing. Not only do we need more but also better prepared nurses, and better utilization of them to meet the demands of specialized health services.

The Kansas Health Facilities Information Service, Inc., Subcommittee on Nursing has completed an extensive study identifying the nursing needs and resources in our State and has found the inadequate supply of nurses a mounting problem. In order to provide better nursing care, some other means must be sought to fill this need; as the obvious solution, more manpower is unrealistic in the foreseeable future. How then can we best utilize the manpower already available? In what ways can nurses amplify and up-date their general and professional knowledge? How can we develop a program which will relate knowledge to service and contribute to improved nursing practice? How can the existing continuing education efforts be substantially

enhanced and extended to more nurses and consumers of medical care? Who will assume this responsibility? How can the Kansas Regional Medical Program (KRMP) initiate nursing programs to bridge the gaps and support new approaches which will benefit health care recipients? These are the questions to which the KRMP office of nursing is directing its attention since the regional medical program affords one of the best avenues through which better health care can be achieved.

The Kansas Regional Medical Program geographically encompasses the entire State of Kansas. Within these 82,264 square miles there is according to the 1960 census statistics, a population of 2,179,000. Since Kansas is primarily an agricultural State, there are only three cities with a population over 100,000 and just eight cities with a population above 25,000. The population is slowly increasing and Kansas has now moved from its 31st place in population size in 1950 to that of 28th place in the Nation in 1960.

Medical care in Kansas is provided through numerous small hospitals, 6,900 active registered nurses, and 1,681 practicing physicians. Of the 163 general hospitals in the State, 86 have less than 50 beds. There are 35 hospitals with 50- to 100-bed capacity, 24 fall in the 100- to 200-bed category, 10 have a capacity between 200 and 400, while only eight hospitals have more than 400 beds.

The supply of professional nurses

provided by our 16 diploma schools, two associate degree and two baccalaureate programs, falls alarmingly short of meeting the need and the demand for registered nurses. How then can we provide better nursing care? One way might be to explore ways of up-dating the currently employed practitioner. With this objective in mind, a circuit course focusing on care of patients with cancer, heart disease, and stroke was planned. The University of Kansas has sponsored programs for registered nurses annually since 1948; however, many practitioners have found it impossible to leave their place of employment and/or family to attend these institutes and workshops.

As a KRMP pilot study, three nursing symposia have been planned for presentation in six centers selected on the basis of convenience to the largest number of nurses in the rural area and suitability of facilities. The centers selected were among those already established by the Department of Postgraduate Medical Education for the physician's circuit course. These towns (Parsons, Emporia, Sabetha, Colby, Garden City, and Great Bend) are located in the rural sections of the State and have a population of less than 20,000.

The first session of the eastern circuit course was held on December 11, 1967. To our happy amazement, the program was oversubscribed necessitating a change in some of our plans. Advanced registration gave some indication of the number of nurses who

planned to attend enabling us to make adjustments for the presentation in Parsons. We were not so fortunate in Emporia as there were so many unexpected late registrants and walk-in enrollees that we were unable to accommodate the group in the scheduled area vocational technical school auditorium. The nursing students who appeared were denied admission because of the overcrowded conditions. We had anticipated perhaps 75 enrollees, but instead 204 nurses arrived plus additional nursing students. It is interesting to note that a number of inactive nurses were among those attending the symposium. Perhaps this will be an incentive for them to return to active practice.

The State Nurses' Association, the League for Nursing and the Voluntary Health Agencies were apprised of the circuit course being planned and gave their support for its implementation. Nurse representatives from the Voluntary Health Agencies will assist in planning the content for subsequent programs. In this way we will endeavor to have more collaborative community planning. Faculty for the circuit have been provided from the university's Department of Nursing Education and Nursing Service as well as guest faculty from a Catholic Collegiate School of Nursing and from a private protestant hospital.

As a means of evaluating the program, each nurse attending the session is asked to complete a question-

naire and return it to the field representative. The evaluations returned at the close of the first circuit indicated the nurses felt our pragmatic approach would be helpful and useful in their nursing practice. Their constructive criticism will be utilized in planning future programs. It is our intent that continuing education not be directed toward the acquisition of knowledge for the sake of knowledge alone, but rather toward applying this in patient care. An evaluation of the circuit course, independent of the questionnaire completed by the nurses, will be made by the KRMP division of research and evaluation.

Previously, 1-day or one-half day programs have been presented in rural areas of the State by other nursing and allied organizations without cost to the enrollees, but these have been poorly attended. A fee of \$5 is charged for three, half-day symposia, which of course, does not underwrite the cost of the circuit. It does serve as a pilot project to determine whether or not nurses will perhaps financially support these kinds of programs in the future when they are no longer federally supported. Programs sponsored by the KRMP will strengthen rather than compete with existing programs.

In reaching the goal of improved patient care, cooperative leadership must come from nursing education, nursing service, and medicine. One course designed to provide basic knowledge and intensive care of criti-

cally ill patients with coronary heart disease is being offered. The program is sponsored by KRMP through the cooperative effort of four cardiologists and four hospitals in Kansas City. This represents an effort to disregard State lines in order to provide the best faculty and clinical resources for the training program.

To ascertain the potential manpower of the 3,100 nonpracticing nurses in Kansas, a survey was made to learn more about their interests and needs. The data is now in the process of being analyzed. This may be one reservoir through which the need for nurses not being met by the present nursing supply can be accomplished. Many nurses have been lost to nursing (some only temporarily) through marriage and homemaking. While they have been absent, nursing practice has continued to advance. Some graduates who have attempted to return to practice are simply overwhelmed by the new concepts and changes in nursing, thus, shattering their self-confidence.

The Kansas Regional Medical Program will sponsor its first 6-week clinical retraining course for nurses in February 1968. The 180-hour course (40 percent didactic and 60 percent clinical practice) is designed to stimulate self-confidence, up-date nursing skills and knowledge, while giving direct care to patients with heart disease, cancer, stroke, diabetes and related diseases. The course will be continued as long as a need exists. This offering complements refresher

courses being coordinated by the Kansas State Nurses Association.

During the past several years, many hospitals in the greater Kansas City area have attempted to recruit inactive nurses by providing short refresher courses. Because there has been a lack of coordinated activities among the various hospitals, this represents a redundant expenditure in terms of nursing service personnel involved in a training program as well as duplication and overlapping of recruitment efforts. Though the efforts of the KRMP Assistant Coordinator for Nursing and the Greater Kansas City Inservice Education Directors Association, all of the metropolitan area hospitals agreed that a centralized retraining program for nurse reactivation would be far better than the present wasteful procedure. Such a program would seem to achieve one of the highest aims of the regional medical programs. It demonstrates the development of cooperative arrangements between a multiplicity of institutions of various sizes and orientations, as well as increased efficiency of faculty utilization. All of the institutions would receive maximum benefits from a high quality, continuous rather than episodic retraining program, which is not economically feasible for hospitals acting independently to provide this service for the community. A unified training program has now been proposed.

Through the regional medical programs (RMP) nurses have a real opportunity to become involved in

providing better health care. A group of public health nurses is currently looking at ways in which they can deliver better services to people and have now requested assistance from KRMP. Other types of programs are presently being explored.

As members of KRMP staff have visited hospitals and other organized planning groups, the nursing coordinator has been actively involved in assisting with plans for patient care as well as training programs for nurses. It has been interesting to note that as local action groups formed, nurses were omitted from the planning group until a request for their representation was made from the KRMP nursing office. Now, when local groups wish to discuss health care involving nursing in any fashion, nurses must be included before discussion with the KRMP staff occurs. This lack of nurse representation on various health committees is not unique to Kansas. It is our impression that the majority of regional medical programs have not included nurses in the planning phase of proposed activities and few RMP's have established an office of nursing with equal status and responsibility as other staff positions. It seems apparent to us that nursing is one of the most important areas for exploration and those looking for an enthusiastic acceptance of RMP activities should look to nursing for an immediate payoff. Although it is unfortunate that nurses have not been included in the initial planning in many areas, the most important

factor now is for nurses to become involved in cooperative planning and in assuming responsible leadership. Regional medical programs can become the alliance for improved health care through training programs, continuing education, demonstration units and other means.

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CONTINUING NURSING EDUCATION USING UNIVERSITY HOSPITAL NURSING SERVICE TRAINING FACILITIES

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A regional approach to continuing education in nursing is essential if we are to be effective in promoting and maintaining improved health care for patients with heart disease, cancer, stroke, and related diseases. New advances in the diagnosis and treatment of disease are being made each day. Knowledge is now accumulating at such a rapid rate that it will double in the next 15 years. Obviously, the threat of professional obsolescence hangs over the head of anyone who is not running to keep in place and abreast of today's knowledge explosion. In addition, in the health fields particularly, there is a critically short supply of our one essential resource—human talent—the human resource. These major prob-

lems—the knowledge explosion and manpower shortage—affect us all and require a concerted mobilization of effort. We must, as the guardians of the health of the Nation, establish a vital togetherness in which resources, talent, knowledge, procedures and techniques, are pooled and shared with all in the region, and then in the country. In this way, the latest advances in modern health care will be made available to all the people.

The 15-county Central New York region has a population in excess of 1,700,000 persons. To service these people, there are 52 hospitals. At present, there are 13,980 registered nurses and 4,073 licensed practical nurses in this region.

The Central New York Regional Program for Continuing Education in Nursing is designed to improve the care of patients in the region by expanding and increasing the nursing knowledge, skills and abilities of the nursing personnel of the region's hospitals. The programs are intended to be clinical and practical in approach, emphasizing the "how to" of expert nursing care.

The need for this type of program has been clearly identified by the medical and nursing personnel in the region. Many of the small hospitals have no formal training programs and no educational resource people available, while in other hospitals, these are present, but quite limited. All hospitals have expressed a need for assistance in preparing nurses in such areas as coronary care, intensive

care, respiratory care, rehabilitation nursing, including rehabilitation of the cancer patient, care of the burn patient, neurological-neurosurgical nursing, care of the patient treated with radioactive materials, care of the patient in renal failure, and care of the diabetic. Many wanted training for their nurses in any or all of the modern nursing skills that have recently been added to today's nurse's repertoire through the development of new patient care equipment. Each hospital recognized the need for providing their nurses with the opportunity to keep their professional knowledge and competence current.

With this unanimous support and urgent need, the programs for continuing education in nursing for the Central New York Region were developed.

These programs have been designed to be multidimensional in approach and conduct. There are two major categories of planned programs: (1) Inmedical center programs; and (2) programs conducted in subregional centers.

Incenter programs are designed so that attendance can be real or remote, via telephone or television. It is planned that onsite visits be made by the nursing instructors to the participating hospitals. This will provide the opportunity for further discussion of problems, general program discussion and evaluation, as well as provide a tool for future program planning and continuous coordination.

Programs in which participation is

possible by electronic media will be designed so that participating hospitals will have correlated study guides and prepared visual materials which will help vivify the remote attendance. When correlated clinical laboratory experiences in the Medical Center cannot be realized, a coordinator in the participating hospitals will plan the followup and supervised practice. Suggested clinical activities will be provided to the coordinator. These are designed to maximize the learning potential of each program and help realize its intended contribution to improvement of patient care.

It is recognized that attendance at programs away from the home hospital may be difficult to arrange. In view of this, whenever possible, inmedical center programs have been designed so that participants will only have to spend 1 or 2 days per week at the Center.

Programs are designed so that participation in selected units, as well as in their entirety, will be possible. Master schedules will be prepared in advance and sent to the participating hospitals. They will have the option of selecting the programs or units for which their need is the greatest.

Other programs, such as coronary care nursing, require intensive concentrated involvement and participants will be encouraged to register for the program in its entirety.

Programs will be repeated several times during the year since registration at any particular program will be

controlled by the objectives of the program and the ability to achieve these with small versus large groups.

In addition to these onsite and off-site clinical programs, it is our aim to have programs designed specifically for the "developers of nursing talent"—programs designed for those nursing personnel who will teach others upon return to their own hospitals.

The regional medical program's nurse instructors are members of the faculty of the Upstate Medical Center's nursing service. These instructors are skilled practitioners who are able to communicate their knowledge and skills to others, particularly in the area of how to give good patient care. We will have 16 instructors who will devote 20 percent of their time—a total of approximately 720 days a year, to the regional medical program. By utilizing 16 such people, we can achieve a much greater diversity of skills and knowledge than could otherwise be achieved with a smaller group attempting to cover such a wide range of clinical specialties. These clinical experts will be joined by other resource people in the community with the aim of providing the very best instruction to the nurses in the region.

To complement and augment the educational programs, a regional library of staff teaching and patient care educational materials will be developed to service the needs of all of the nursing departments in the Central New York region. Hospitals

will be encouraged to submit materials for use by the region and will be kept informed of new additions to the continuing nursing education library. It is recognized that local conditions may necessitate adaptations of materials but the general information can be relevant in each area. The library will contain, for example, prepared videotapes with accompanying study guides; slides series with correlated scripts on audiotapes, and current nursing procedure and unit management manuals. Couple this with the resources of the medical library of the State University of New York which are already available to the regional hospitals and a wealth of valuable educational materials will be available to each hospital in the region. Distance from the medical center will be minimized and the best consulting resources will be available to help each in the improvement of patient care and in the optimum development of the nursing staff who render this care.

The one essential ingredient in all of our endeavors will be involvement of the participating hospital nursing services. The programs are based on needs and will be flexible and dynamic in order to meet these needs as identified by those involved.

This constitutes the core of our program planning and now, via slides, we can review a few of the highlights of some of the program activities and the teaching techniques and methods that will be used.

Slide 1 is a nursing program in

session. The instructor is speaking over the telelecture microphone and being heard over telephone lines by nursing audiences in other hospitals. The teleculture audience sees the same visuals as presented in the medical center as well as hearing the instructor's voice.

Note the three color TV projection drums at the front of the room. In this program, closed-circuit TV is used as a cooperative instructional medium. The screen in the front of the room becomes the TV projection screen. As a part of the RMP, we will have a portable videotape recorder and receiver that we can bring to those hospitals which do not have their own equipment for showing videotapes. ITV can be one of our greatest assets in minimizing distance between hospitals in the region.

Slide 2 shows a bioelectronic engineer preparing to roll an ITV program—"Care and Feeding of the Cardiac Monitor." On the cart in front of the recorder are two of the several other prepared ITV tapes which are available.

Slide 3—Here an anesthesiologist and a nurse instructor are teaching a group of nurses the emergency resuscitation procedure on the training mannequin—Resusci-Anne.

Slide 4—This slide depicts a part of the program designed for preparing the "developers of talent". It is an example of the program designed to prepare instructors to conduct OR technician training programs. It depicts the instructor and a group of

technicians in a training session. They have draped the teaching mannequin for a cholecystectomy and are now practicing the duties of the scrub and suture nurse.

Slide 5—This is a picture taken in the SCU. Here the nurse instructor is teaching another nurse the procedure for peritoneal dialysis. The patient is a 55-year-old female with CA of the cervix and hepatic dysfunction. One of the main problems in preparing nurses to function in a special care unit is helping them to develop complete mastery of the complex equipment and procedures used in the care of these patients.

Slide 6 introduces the coronary care nursing program. Here the instructor is explaining the use of the E for M monitor. At your right you can see the emergency cart with its defibrillator and special drugs. The patient is a 62-year-old male with second-degree heart block.

Slide 7—Here the instructor is teaching a nurse how to take rhythm strips through the monitor.

Slide 8—This picture was taken in the acute care area of the neurosurgical unit. The patient is a 21-year-old male with a depressed skull fracture and fractured right femur—a car accident victim. The instructor is stressing the fact that the trauma patient frequently has many injuries and is discussing priorities of care.

Slide 9—Here the instructor is teaching a nurse the techniques and set-up for caring for a 2-year-old male with first-, second- and third-degree

burns over 58 percent of his body surface who is being treated with Ag NO₃ solution. Expert nursing care is essential to the successful recovery of these patients and a carefully planned nursing education program can help each nurse become an expert practitioner in this area.

Slide 10 shows a nurse teaching the new diabetic how to test her urine and reinforcing the teaching the dietitian has started regarding her diet.

Slide 11—In this slide, the chief technologist in nuclear medicine is explaining and demonstrating the 5-inch dual probe scanner to a group of nurses. We consider it essential that the nurse be fully aware of what happens to her patient so that she can correctly prepare the patient for the examination and give him the psychological support he needs.

Slide 12—In this slide, the instructor is teaching the nurse how to care for the patient in balanced skeletal traction. The patient is a 64-year-old female with a fractured femur.

Slide 13 introduces our program in respiratory disease nursing. This is a 35-year-old female who has had a cerebral embolism and a tracheotomy. The inhalation therapist is explaining the treatment as he adjusts the trach collar delivering humidification. At the right of the screen can be seen the respirator with attached ventimeter.

Slide 14—Here an instructor is teaching a nurse how to give an IPPB treatment (intermittent positive pressure breathing) with the Bennett

respirator. The patient is a 62-year-old female who had a pan-hysterectomy for adenocarcinoma of uterus. These respirators, and others, are becoming a standard piece of patient care equipment and the nurse must become expert in their use.

Slide 15—As a part of respiratory management, respiratory physical therapy is now commonly employed. This slide shows a 9-year-old boy with chronic bronchiectasis of the left lower lobe experiencing cupping and postural drainage with the physical therapist. Cupping and postural drainage are necessary adjuncts to the treatment of many respiratory diseases and nurses will be taught to become skilled practitioners in these techniques.

Slide 16—This next slide introduces selected aspects of rehabilitation nursing. This is a 63-year-old female who has had a CVA with rightsided hemiplegia. The instructor is demonstrating the use of the hand roll and trapeze.

Slide 17—Here an instructor is working with a group of nurses demonstrating the nursing care required for a quadriplegic patient on a stryker frame. The patient is a 58-year-old male who was in a car accident.

Slide 18—This last slide shows the instructor teaching a nurse the safety precautions necessary in caring for a patient being treated with radioactive materials. The patient is a 48-year-old female with CA of cervix and a radium implant.

As you can see, the programs are highly clinical and practical in approach, emphasizing the "how to" of expert nursing care. The objective is to realize improved health care for patients with heart disease, cancer, stroke and related diseases.

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HEALTH MANPOWER SURVEY OF WESTERN NEW YORK

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Two million people live in western New York State, presumably an area with a wealth of sophisticated medical facilities and services. Yet are there sufficient physicians in the area to provide quality medical care to all of the people? Are nursing services adequate even in the remote villages of the region and are laboratory technicians really in short supply? Are professional health personnel distributed well enough throughout the region to provide a blanket of health services to all inhabitants or are there significant gaps in medical care coverage.

The answers to these and many similar questions were sought by the Regional Medical Program of Western New York in the spring of 1967. At that time, the Health Organization of Western New York invited the Community Services Research and Development Program of the Department of Preventive Medicine¹ to plan, conduct and report the findings of a survey of the health manpower resources of the western New York region and Erie County, Pa. The Health Organization of Western New York had proposed the manpower survey as one of six planning projects in its original grant application to initiate the regional medical program; the manpower survey became the first project to be implemented. Departmental staff was supplemented by the regional medical program for the field operation of this survey.

Objectives.—The specific objectives of the Health Care Manpower Survey were to determine the current resources and distribution of health care personnel in the eight counties of the region in order to identify and enumerate professional and subprofessional health manpower resources by geographical location, to provide that component of the baseline data necessary for projection in any estimation of the future availability of health care personnel, and to obtain

¹The Community Services Research and Development Program of the Department of Preventive Medicine of the State University of New York at Buffalo is supported by P.H.S. grant #CH 00153-03.

fundamental information which can be related to the manpower requirements of programs in planning.

The study plan clearly delineated its objective to obtaining data for a current, single point in time. Ultimately, in order to make projections for future needs, the data obtained by this survey must be subjected to consideration of a number of variables.

Methodology.—A review of the literature and the reports of other manpower surveys revealed approximately 90 health-related professional titles and vocational categories. By eliminating those job categories for which little or no formal training or experience was required prior to employment, and by combining several specific categories under more general classifications, the list was reduced to 22 professional job descriptions (appendix 1). Each job category was discussed with appropriate representatives from professional societies and faculties of schools and training programs to clarify the classifications, qualifications and job descriptions.

The ensuing questionnaire made provision for defining the actual duties performed in order to differentiate between personnel concerned with rendering health care directly to patients and personnel whose duties were of a primarily administrative, supervisory, academic or research nature.

In order to structure the data collection process, the occupational listing was divided into two groups: Those for whom practice is regulated

by law through licensure and who are usually self-employed; and those who are employed in a health related service facility in occupations which are not necessarily regulated by mandatory registration or certification.

The primary sources of data about the self-employed were the New York State Education Department and commercial listings of health professionals. Information about individuals employed in health service facilities was necessarily obtained in a different and more laborious manner. A list of all the health related service institutions and facilities, which were probable employers of individuals in any of the vocational categories in the survey, was prepared.

Directories of community health and social agencies published by the Community Welfare Councils of the counties were the most valuable sources for this listing. The information acquired from these directories was verified by and supplemented with directories from organizations such as voluntary social agencies, medical societies and mental health listings; almanacs and telephone directories; and interviews with certain professional people in the community who were knowledgeable about health resources.

Several other listings, not usually included in community agency directories, were also used as references. For example, the New York State Workmen's Compensation Board provided a list of all western New York

industries which had health programs; the State health department provided complete lists of all hospitals and nursing homes in western New York and the New York State Department of Social Services was helpful in identifying all homes for the aged, facilities for child care and other resources under its supervision. Other State, county, and city agencies provided similar information about programs within their jurisdictions.

This approach was selected instead of that often employed in manpower surveys in which sources of information are limited to licensure or other listings. The apparent assumption of such surveys is that because professionally trained persons exist, they are available. Certainly, the total number of registered nurses in a community does not distinguish between those actually rendering patient care and those at home raising families.

Another important reason for obtaining data at the source of employment is to avoid the disparity introduced by those national surveys which either combine full-time and part-time persons or enumerate them separately without regard for the amount of time contributed to patient care. For example, a national survey indicated the presence of 466 active nurses in one of the western New York counties. Actually, the working time of all of these nurses amounted to only 285 full-time equivalents. Since this is a time in

which many manpower surveys are being conducted, it might be appropriate to adopt a standard format such as full-time equivalents to allow for comparison of data among surveys.

Six hundred sixty-four facilities were found to exist in the region, and were classified as in appendix 2. Those agencies, which provide more than one kind of health care service, have been arbitrarily assigned to a single classification.

The study plan, therefore, produced a table which included both the list of job categories and the health care sites from which data could be obtained. Since information was available about certain vocations from more than one source, the table reflects those sources which were considered as primary and those which were used for data validation (app. 3).

Questionnaire Design.—A questionnaire was designed which could be used as a mailed, self-administered instrument for those facilities employing large numbers of persons and/or involving several job categories. The same instrument was used for recording information obtained by telephone interviews. Each facility was requested to supply information regarding the current number of employees in each job category, whether on full-time or part-time status, the total hours worked per week by part-time personnel, and the number of unfilled and needed positions.

Collection of Data.—Letters informing each of the 664 potential respondents of the nature and objectives of the survey were sent to enlist their cooperation and alert them to a subsequent telephone contact.

Within 10 days, the administrator or personnel director of each facility was contacted by telephone. In most cases, having had prior notice, the respondent was prepared to answer those questions which related to his facility. All hospitals and some schools requested that the questionnaire be mailed to them for self-administration. In these cases, a complete list of instructions accompanied the mailed questionnaire.

If the questionnaire had not been returned after 1 week, a followup telephone call was made requesting a reply. Telephone calls were repeated weekly until the questionnaire was completed or the information was returned by phone. Several respondents required personal visits to assist them in assembling the information required to complete the questionnaire.

Response.—The response was essentially 100 percent. Only one hospital refused to supply information requested. Four hospitals could not supply information about vacant or needed positions.

Data Processing.—A gross and necessarily arbitrary division of metropolitan service areas was made for each geographic region within coun-

ties for the purpose of determining the ratio of population to professional personnel. The urban and rural areas were delineated to calculate population denominators. The total region contained almost two million people, three-quarters of whom reside in the relatively few urban centers.

All data collected from the interview phase and from professional licensing lists was coded and transferred to IBM punch cards for analysis. The data obtained from the various health facilities was organized by job classification and type of facility for each service area by means of the 7044 Computer at the Computer

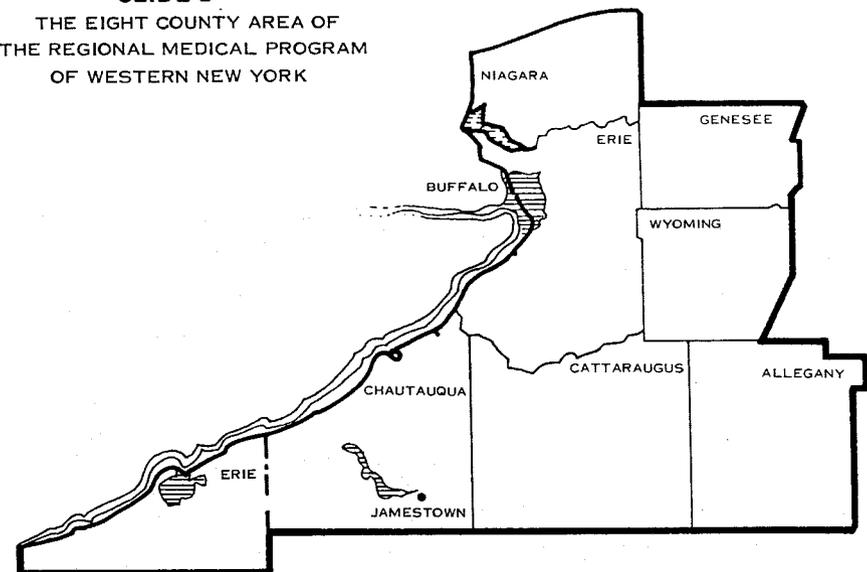
Center of the State University of New York at Buffalo.²

The findings of the study are compiled into over two hundred tables and cannot possibly be included in this presentation. Rather, in this paper the methods employed to obtain, organize and interpret the data will be described.

A few tables will be presented to illustrate the way that data has been organized. Erie County (slide 1), shown here as an example, was di-

² The Computing Center at the State University of New York at Buffalo is partially supported by NIH grant FR-00126 and NSF grant GP-7318.

SLIDE 1
THE EIGHT COUNTY AREA OF
THE REGIONAL MEDICAL PROGRAM
OF WESTERN NEW YORK



vided into four geographic areas, each of which has a different population density and a separate geographic relationship to Buffalo, the urban center, with the greatest concentration of health facilities. The population of each area provides the denominators for the personnel-population ratios which illustrate the variation in the

health personnel that are available as well as the additional personnel needed.

SLIDE 2 is a geographic breakdown of the service areas of Erie County, N.Y. (not reproduced here).

The tabulations for the four occupational categories in slide 3 illustrate how data were tabulated for all

22 occupations by service area within each county. This table shows the variation in numbers employed, vacant positions, and needed positions expressed in absolute numbers and as ratios per 100,000 population. The personnel-population ratios are dramatic illustrations of the disparities in the distribution of health personnel.

Data regarding the numbers available and the numbers needed for all the vocations—excluding the self-employed—in the entire county are summarized in slide 4. The number of persons actually needed in each job category is the sum of the unfilled positions plus those additional positions needed to provide optimal care as was reported by our respondents. In Erie County, for example, 355 registered nurses are needed to fill current staff positions and another 200 to fill positions which should be created to provide optimal medical care. Important here is the fact that there are unfilled positions in almost every job category and that there is a need for positions in addition to those already budgeted.

Slide 5, by showing the distribution of staff nurses, unfilled positions, and needed positions by type of facility, makes it apparent that 312 of the 355 vacant staff nursing positions are in general hospitals, 17 in mental hospitals, 16 in nursing homes, etc. Distributions similar to this for each job category by type of facility have been prepared so that needs and availability of health care personnel are more specifically defined.

Slide 6, which is an excerpt of a lengthy table, graphically illustrates the expected concentration of specialists in the metropolitan area as compared to the rural area. These tabulations indicate that individuals living outside the metropolitan area would be required either to travel to

SLIDE 3

DISTRIBUTION OF STAFF NURSES, LICENSED PRACTICAL NURSES, PHYSICAL THERAPISTS, AND OCCUPATIONAL THERAPISTS BY SERVICE AREAS IN ERIE COUNTY, N.Y., 1967

Job Title	Number				Number per 100,000 population			
	Full time	Part time*	Vacant positions	Needed positions	Full time	Part time*	Vacant positions	Needed positions
Staff nurses	1620	572	355	207	152	54	33	19
I. Buffalo metropolitan	1440	536	313	186	159	59	34	21
II. Central towns	15	2	2	7	21	3	3	10
III. Northeast towns	37	3	4	8	102	8	11	22
IV. Southern towns	128	31	36	6	239	58	67	11
	-----	-----	-----	-----	-----	-----	-----	-----
Licensed practical nurses	1020	133	69	127	96	12	6	12
I. Buffalo metropolitan	916	124	49	87	101	14	5	10
II. Central towns	4	3	5	2	6	4	7	3
III. Northeast towns	30	6	11	33	82	11	30	91
IV. Southern towns	70	6	4	5	131	11	7	9
	-----	-----	-----	-----	-----	-----	-----	-----
Physical therapists	60	5	10	18	6	0.4	1	2
I. Buffalo metropolitan	51	5	9	14	6	1	1	2
II. Central towns	1	1	1	1	3	1	1	1
III. Northeast towns	1	1	1	1	3	1	1	3
IV. Southern towns	8	1	1	2	15	1	2	4
	-----	-----	-----	-----	-----	-----	-----	-----
Occupational therapists	78	3	16	25	7	0.2	2	2
I. Buffalo metropolitan	69	2	10	19	8	0.2	1	2
II. Central towns	2	1	1	2	3	1	1	3
III. Northeast towns	1	1	1	1	3	1	1	3
IV. Southern towns	7	1	6	3	13	1	11	6

*Expressed full-time equivalents.

SLIDE 4

NUMBER OF PERSONS, VACANT AND NEEDED POSITIONS, FOR SELECTED HEALTH OCCUPATIONS, 1967, ERIE COUNTY, N.Y.

Job title	Reported numbers			
	Full time	Part time*	Vacant positions	Needed positions
Nurses, staff.....	1620	572	355	207
Nurses, head.....	574	18	35	154
Nurses, supervisory, administrative.....	283	7	15	40
Nurses, teaching.....	166	6	6	8
Nurses, research.....	12	1	1	.....
Public health nurses.....	104	2	8	95
Nurses, total.....	2759	606	420	504
Licensed practical nurses.....	1020	133	69	127
Physical therapists.....	60	5	10	18
Occupational therapists.....	78	3	16	25
Speech clinicians, master's degree.....	29	7	4	6
Speech clinicians, nonmaster's degree.....	11	2	.....	1
Medical technologists.....	189	24	30	7
Laboratory technicians.....	250	49	17	18
X-ray technicians.....	166	17	13	13
Dental hygienists.....	53	2	1	7
Psychologists, Ph. D.....	45	1	7	35
Psychologists, master's degree.....	51	1	4	7
Social Workers, master's degree.....	230	16	32	73
Social Workers, nonmaster's degree.....	843	9	49	3

*Expressed in full-time equivalents.

SLIDE 5

DISTRIBUTION OF STAFF NURSES BY TYPE OF FACILITY, ERIE COUNTY, N.Y., 1967

Type of facility	Staff nurses			
	Full time	Part time*	Vacant positions	Needed positions
General hospitals.....	1146	501	312	77
Mental hospitals.....	37	7	17	15
Nursing homes.....	47	25	16	24
Mental health clinics.....	.....	.....	.....	1
Other clinics.....	1	2	.....	1
Rehabilitation centers.....	2	.....	.....	.....
Medical group practice.....	8	.....	.....	1
Laboratories.....	14	2	1	.....
Official public health agencies.....	49	9	.....	.....
Voluntary public health agencies.....	19	2	.....	.....
Homes for aged.....	46	4	5	16
Maternity homes.....	4	6	.....	.....
Child care institutions.....	4	1	.....	.....
Schools for retarded.....	54	4	1	58
School systems.....	106	8	.....	12
Industry.....	83	1	3	2

*Expressed in full-time equivalents.

the city for specialized health care or to seek care from one of the few local specialists who serve comparatively large numbers of people. Interest-

ingly, the most rural area has the highest ratio of general practitioners per population, exceeding even that for the urban center.

Slide 7 shows, by a further analysis of the findings, the relationship of hospital personnel to the number of hospital beds in each area. This kind of tabulation cannot determine whether the physical facilities are adequate for the numbers of the population at risk, but it does show the ratio of health personnel to existing medical facilities and serves indirectly as a measure of the quality of care.

Excerpts of the findings of the health manpower survey of western

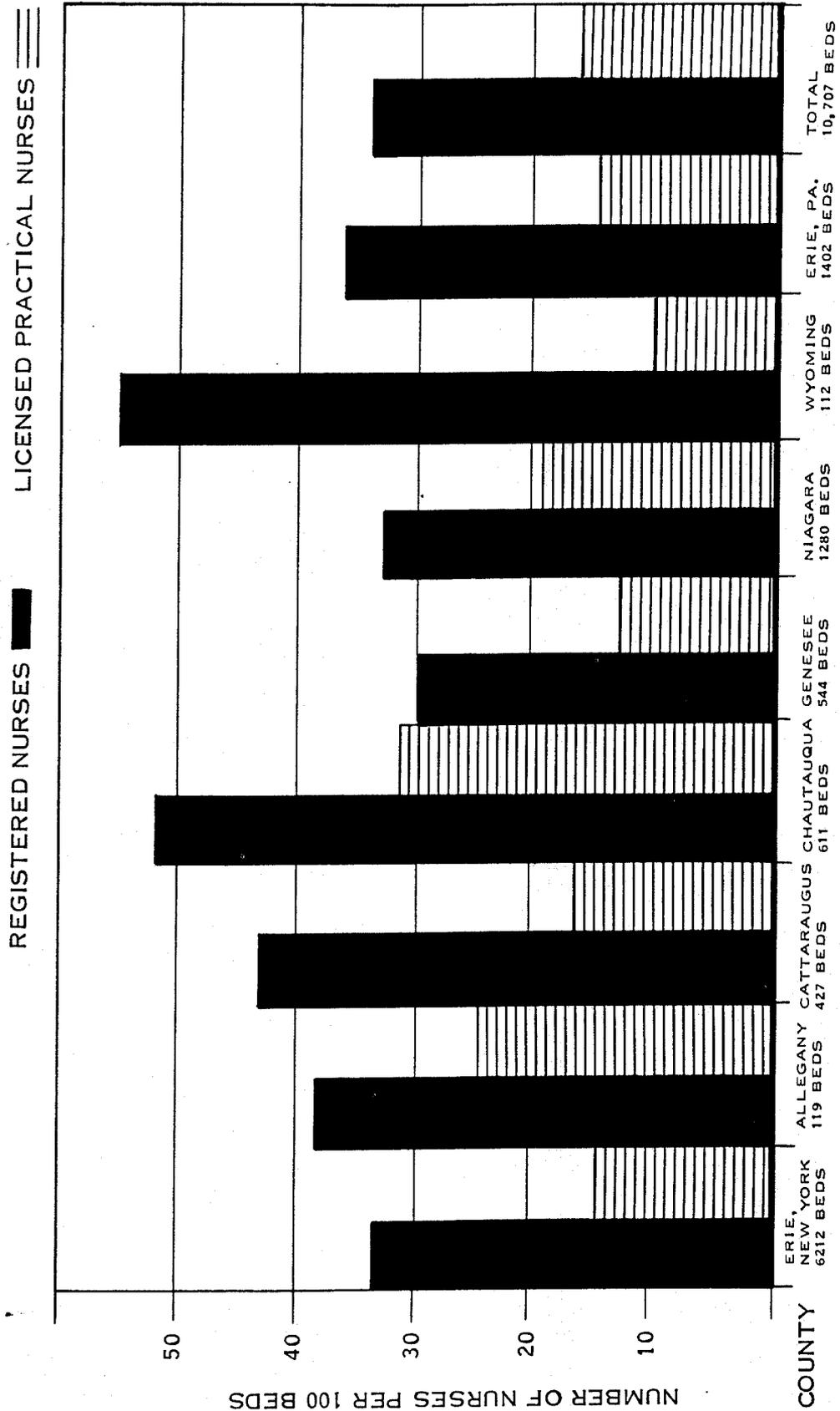
SLIDE 6

DISTRIBUTION OF PHYSICIANS BY SPECIALTY AND SERVICE AREA WITHIN ERIE COUNTY, N.Y., 1967

	Buffalo metropolitan		Central towns		Northeast towns		Southern towns		Total	
	No.	Rate (100,000)	No.	Rate (100,000)	No.	Rate (100,000)	No.	Rate (100,000)	No.	Rate (100,000)
Allergy.....	11	1	.....	.....	.....	.....	.....	.....	11	1
Anesthesiology.....	76	8	6	9	.....	.....	3	6	85	8
General practice.....	292	32	16	23	8	22	20	37	336	32
Surgery.....	268	30	3	4	1	3	4	7	276	26
Ophthalmology.....	66	7	1	1	.....	.....	1	2	68	6
Pediatrics.....	119	13	8	11	.....	.....	1	2	128	12

SLIDE 7

RATIO OF NURSES TO HOSPITAL BEDS IN THE COUNTIES OF WESTERN NEW YORK, 1967



New York have been presented as examples of the kinds of data obtained from an extensive survey of health facilities and agencies, and from licensure and other listings. Data from this and all other cross sectional surveys that refer to a single point in time are limited by the dynamic nature of the situation. Nevertheless, these data clearly pinpoint areas of current personnel needs within the network of health services, and can provide an important component for projecting health manpower needed for future long-term planning.

APPENDIX 1

HEALTH VOCATION CATEGORIES

Physicians	Medical technologists
Dentists	X-ray technicians
Osteopaths	Physical therapists
Chiropractors	Occupational therapists
Optometrists	Educational vocational rehabilitation counselors
Psychologists (clinical)	Speech therapists
Podiatrists	Social workers
Pharmacists	Nutritionists
Registered nurses	Dieticians
Licensed practical nurses	Hospital Administrators
Public health nurses	
Dental hygienists	

APPENDIX 2

FACILITIES

General hospitals	Federal health programs
Mental hospitals	Homes for the aged
Nursing homes	Maternity homes
Outpatient clinics	Child care institutions
Mental health clinics	Schools for retarded
Other clinics	Prisons and reformatories
Home care programs	Special school programs
Rehabilitation centers	School systems
Medical group practice	Official social agencies
Laboratories	Voluntary social agencies
Official public health agencies	Industry
Voluntary public health agencies	

APPENDIX 3

SOURCES OF DATA

	Health service facilities																Professional listings					Surveys															
	General hospitals	Outpatient clinics	Other clinics	Medical group practice	Laboratories	Hospital—mental hygiene	Mental health clinics	Rehabilitation centers	Nursing homes	Maternity homes	Homes for aged	Schools for retarded	Child care institutions	Official P.H. agencies	Voluntary P.H. agencies	Official social service agencies	Home care programs	School systems	Special school programs	Industry	Prisons and reformatories	Federal health programs	Voluntary social service agencies	Licensure	Registration	Certification	Professional and non-professional affiliations	Commercial: C-O'N.	NYSSES	Federal-State data	Other surveys	Check					
Physicians	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Dentists																																					
Osteopaths																																					
Chiropractors																																					
Optometrist		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Psychologist (clinical)		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Podiatrist																																					
Pharmacist		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Nurse R.N.		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Nurse L.P.N.		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Nurse Public Health		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Dental hygienist		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Medical technologist		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
X-ray technician		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Physical therapist		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Occupational therapist		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Education and vocational rehabilitation counsels		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Speech therapist		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Social worker MSW		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Social worker other		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Nutritionist MS		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Nutritionist other		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dietician MS		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dietician other		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Hospital administrator		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

X = Primary source of data. V = Source of data validation.

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GUEST RESIDENT PROGRAM

GEORGE ROBERTSON, M.D.
Medical Director
Bingham Associates Fund
Maine Regional Medical Program

There were great problems in disseminating medical knowledge some 30 years ago when we began our efforts through the Bingham Associates program. As a result of the vast increase in medical knowledge in the years since then, these problems have been enormously accentuated. There have been great expenditures directed toward the accumulation of knowledge. There have not been corresponding expenditures directed toward diffusing this new knowledge. Along with an increasing concentration of young medical talent in teaching centers (for example, there are over 200 interns, residents, and fellows presently in the 385-bed New England Medical Center Hospitals), there has been a sharp decrease of such talent in nonteaching community hospitals, and there are none in small community hospitals.

With the above facts in mind and with the notion that it might be possible to redistribute partially the sup-

ply of young medical talent to serve as a means of communication between the teaching centers and the practicing physicians in the community hospitals, a feasibility study was undertaken 3 years ago: Senior residents or fellows (clinical or research) at Tufts-New England Medical Center were sent for a week at a time every 2 months to two small community hospitals in Maine which were without house staff.

It was anticipated that the residents might be viewed by the physicians in the community hospitals as media for the transmission of information and not as teachers. They would provide information as to how certain clinical problems are handled by experienced clinicians in the medical center departments in which they were working and not how they as young and comparatively inexperienced physicians handle the problems.

Because their presence would be discontinuous, they could not be used for routine hospital work and yet, at the same time, the program would automatically provide annually and throughout the year the stimulus of new information and new faces. The residents do in fact now provide a wealth of just such stimulation in university hospital centers.

This program created little or no strain on the teaching facilities of the medical center. With no extra effort on the part of the faculty, their teaching and the fruits of their research reached the community practitioner by way of their residents and trainees.

Thus channels of communication between the university hospital center and the relatively isolated practitioner were established. Such a program, it was felt if successful, could be widely reproduced.

An intensive orientation of the community hospital staff and the guest resident was done prior to the onset of the program.

Protocol for hospital: (slide 1).

Protocol for guest resident: (slide 2).

A curriculum vitae of each guest

SLIDE 1

HOSPITAL PROTOCOL FOR GUEST RESIDENT

1. Hospital case work-ups in a.m.
2. Visit staff physician's office in p.m.
3. Consultations at the hospital.
4. Formal talk or CPC to medical staff.
5. Visit laboratory and X-ray.
6. Review 25 records.
7. Visit with administrator.
8. Informal talk to nursing staff.

SLIDE 2

PROTOCOL FOR GUEST RESIDENT

1. Consultations at physician's request.
2. Formal talk to medical staff.
3. Visit to office of staff physician in p.m.
4. Audit 25 records.
5. Visit laboratory and review procedures.
6. Informal talk to nursing staff.
7. Keep diary of daily activities.
8. Know Boston Medical Reports program schedule.
9. Prepare short report on week's experience.

resident was sent to the community hospital's educational committee or chairman and to the administrator prior to the resident's visit so that they would be aware of his area of interest and more properly prepare for him (slide 3).

Here is a sample schedule of activities of the guest resident during his week's visit (slide 4).

Residents were selected by Chiefs of Services at the centers based on their ability to teach, relate to senior physicians, personality, broad outlook, etc. (slide 5).

Financial aspects: The Bingham Associates fund paid the medical center hospitals the resident's salary for the week that he was away. The resident was given an honorarium of \$150 plus travel expenses. The community hospital supplied room and board.

Summary of the year's expense: (slide 6).

Abstracts from the reports submitted by the residents:

1. "Twenty-five records with a diagnosis of acute myocardial infar-

SLIDE 3

CURRICULUM VITAE

Name: _____
 Date and place of birth: _____
 Marital status: _____
 Undergraduate education: _____
 Medical education: _____
 Internship: _____
 Residencies: _____
 U.S. military service: _____
 Subspecialty: _____
 Dates of participation: _____

SLIDE 4

SCHEDULE OF ACTIVITIES

	Monday	Tuesday	Wednesday	Thursday	Friday
7:30 a.m.		Conference, head injuries.			
8 a.m.	Meeting, administrator.		Consults.		
8:30 a.m.		Consults.			
9 a.m.	Tour of hospital.			Pharmacy visit.	
10 a.m.	Rounds, staff physician.	Utilization committee rounds.			Utilization committee rounds.
12 noon	Luncheon meeting.		Luncheon meeting, formal talk.	Luncheon meeting.	Luncheon meeting.
1 p.m.	X-ray visit.	Chart review.			Chart review.
2 p.m.			Laboratory visit.	Staff physician's office.	
3 p.m.	Consults.	Visit to VA hospital.	Consults.		
6 p.m.	Dinner, Rotary Club.				
8 p.m.				Journal Club—VA hospital.	

SLIDE 5

MEMORANDUM

To: Chiefs of service
 From: George J. Robertson, M.D.
 Re: Guest resident program
 One week in a small community hospital in Maine.
 Honorarium of \$150 plus expenses.
 Written report to me.

Name of resident	Dates available
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-----	-----
-----	-----

tion were reviewed. The history was inadequate in 50 percent of the cases. The examination of the heart revealed only a rare mention of any abnormality. In no case were WBC

SLIDE 6

SUMMARY OF EXPENSES, 1966-67

14 honoraria @ \$150	\$2,100
Travel expenses, maintenance	1,218
NEMCH salary reimbursement	1,249
Total	4,567

and sed rate tests followed as data in establishing diagnosis. In 11 cases enzyme data were insufficient for interpretation. The ECG's were diagnostic in 55 percent. The mortality rate was 28 percent. I considered the diagnosis conclusive in 11 cases, possible in 10 cases, and erroneous in four cases." Findings such as these indicate the direction in which our further educational efforts should proceed.

done here. My wife reviewed the Van de Kramer method for stool fat and the xylose absorption test. She listed the necessary equipment along with the approximate cost." Many other useful laboratory tests were taught and installed into the community laboratory by other guest residents.

4. "Some of my time was spent with Doctor C of K. He has a very good collection of X-rays of his orthopedic problems which we used as a basis for discussion. He had also lined up several orthopedic problems from the surrounding area for discussion." What is better than head-on discussion around your own case material?

5. "From a record review on infectious cases, the following problems were noted:

a. Most patients were placed on antibiotics without the use of culture reports.

b. When an occasional culture report was obtained, the antibiotic selected was usually wrong.

c. Generally speaking, antibiotics were given at too low dosages or by the wrong route. The oral route was used in many instances where parenteral therapy would have been a better choice.

d. Drug combinations were used excessively such as Panalba and Combiotic. The only way Streptomycin could be obtained in the pharmacy was combined with Penicillin."

This slide represents 14 weeks of educational effort through the guest resident program in the two hospitals of our feasibility study.

2. "Prior to this visit I was not familiar with this type of medicine, having been exposed to a health system in which doctors participate in 'overspecialization' where there is hardly a doctor who can take over the patients of the obstetrician, pediatrician, surgeon, and even those of the internist. Thus one can appreciate my amazement at the competent versatility of these physicians." The guest resident came back with a healthy respect for the community physician.

3. "Following this I visited the laboratory with my wife, a technician. Stool fat examinations and xylose absorption tests for investigation of intestinal malabsorption have not been

Schedule for 1966-67: (slide 7).

SLIDE 7

SCHEDULE, 1966-67

Aug. 21-28	Psychiatry.
Sept. 4-10	Hematology.
Sept. 12-17	Hematology.
Nov. 13-18	Neurosurgery.
Nov. 13-18	Neurology.
Dec. 11-17	Gastroenterology.
Jan. 29-Feb. 4	Medicine.
Mar. 12-18	Orthopedics.
Mar. 12-18	Medicine.
Apr. 9-14	Cardiology.
Apr. 16-21	Cardiology.
May 28-June 3	Medicine.
June 18-24	Psychiatry.
June 25-30	Psychiatry.

Further developments: Community hospital physicians and guest residents have embraced this program with enthusiasm. Each resident felt that he had made a contribution and received a rewarding experience.

This year six community hospitals are in the program and four Tufts-New England Medical Center hospitals are providing 20 residents.

The residents review previous reports for direction in their educational efforts. The community hospital staff have a review of the reports with the program director each summer. You will note that the residents review hospital records and get into doctor's offices. Educational needs become apparent through the reports of the residents. Evaluation of behavioral change should be possible and is already apparent in one area where post mortem rate has changed from 5 to 50 percent, frozen sections

have augmented the surgeon's armamentarium and new laboratory tests added.

The guest resident program as presented here is an example of cooperative arrangement between university hospitals and community hospitals for the transmission of current knowledge and techniques in a practical way to the busy practitioner in his hospital and office without overburdening the senior physician at the center or inconveniencing the practicing physician. In fact senior residents and fellows are, in our opinion, the physicians of choice for this task. The practicing physician in a hospital without house staff must do the work of residents and familiarity with application of techniques is a forte of residents and fellows.

The applicability of such a program to regional medical program seems obvious.

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CONTINUING EDUCATION PERFORMANCE DEFICITS

CLEMENT BROWN, M.D.
Director of Medical Education
Chestnut Hill Hospital
Philadelphia, Pa.

Greater Delaware Valley
Regional Medical Program

In our program of continuing medical education we have attempted to do two things that may be somewhat different: (1) To make a diagnosis before providing educational therapy. (2) To relate our program directly to patient care.

Rather than start with the teacher or learner as do most programs of continuing medical education, we started with the patient. How do you start with a patient? How did we start this diagnostic process that is supposed to provide us with a prescription for educational therapy? We decided to look for patient needs. A moment's thought might convince you that there are so many that a random search might be quite unproductive. We were convinced. We decided that we needed a priority system for our diagnostic process. We decided to look for the greatest causes of

disability among our hospitalized patients (at the outset we have had to be concerned primarily with hospitalized patients but it is our intention to extend the study to the office practice of medicine and we actually have through some of our followup studies, which we might mention in the discussion period). But what if the disability is not preventable? (Example—carcinomatosis.) It would hardly seem sensible to mount an educational program directed at a disease with but little preventable disability. We should look first for those diseases which cause the greatest amount of preventable disability.

But suppose we are preventing all the disability associated with a given disease entity. Obviously no behavioral change is needed in terms of physician performance. Thus no educational effort is needed. What we are really ultimately looking for then are those diseases which cause the greatest amount of preventable disability that is not currently being prevented by the application of existing resources available to our physicians. These diseases should have top priority. Here we have our greatest improvement potential.

Before I tell you just how we proceeded, I wish to place this concept before you in the form of some diagrams.

In the first slide we see two circles, one entitled "Patient Needs," the other "Medical Resources." The area of overlap represents patient needs

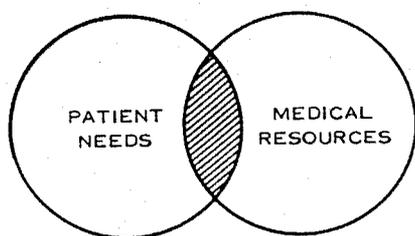


FIGURE 1
WHAT CAN BE DONE?

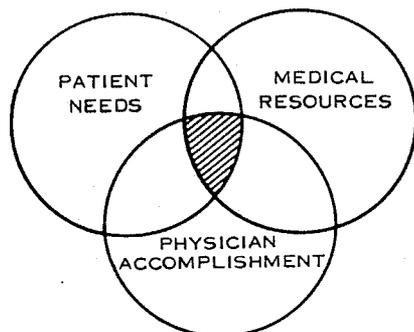


FIGURE 2
WHAT IS BEING DONE?

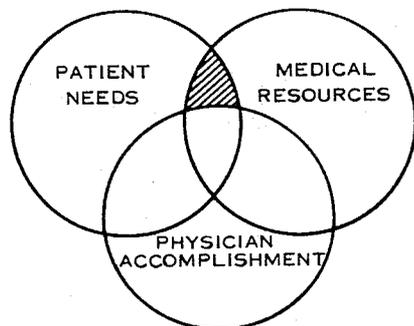


FIGURE 3
OBJECTIVE FOR
CONTINUATION
EDUCATION

that we can meet by application of existing resources at our hospital. Disability that is preventable. (Example—acute myocardial infarction.)

In the second slide there is a third circle entitled “Physician Accomplishment.” The area of overlap represents patient needs that our physicians are meeting through application of existing resources. Preventable disability that is being prevented.

In the third slide the darkened area represents patient needs that could be met by application of resources at our hospital but that are not being met because our physicians are not applying the resources. Preventable disability not prevented. The darkened area includes the objectives for our continuing medical education program.

Now that you have the concept, how was it applied? How did we brighten the darkened area?

We asked ourselves what diseases among our hospital population cause the most total patient disability. We took into consideration a number of measurable factors with respect to the hospital course which, when totaled, might give us an idea of the amount of disability a disease causes, at least during hospitalization. A series of arbitrarily assigned, but mutually agreed upon, weights for each of the several factors considered was adopted, and to determine the total disability caused by each disease entity, we had a computer add up all weights assigned for each patient admitted with the disease. We assigned

weights of one-tenth of a point for each day the patient was in the hospital, three-tenths of a point for each complication listed, 20 points for a death—the ultimate disability. We then multiplied by a factor which we called “social disruption” which was based upon the patient’s age. Here we assigned a factor of three, for those patients between the ages of 21 and 60 years; two, for those between 11 and 20, and 61 and 70; and one at the extremes of age.

If the patient had just one diagnosis, that diagnosis received 100 percent of all of these weights. If there were two diagnoses, the first received 60 percent, and the second 40 percent. If there were three diagnoses, it was apportioned out appropriately. We thus had a total weight for each diagnosis made on each patient admitted, and the total weights of all patients with each diagnosis were obtained so that ultimately we had, for each disease entity, a measure of the total disability which this disease produced among all of our hospital population for a 6-month period. The computer ranked all diseases in a scale, from that disease causing the most total disability to that disease causing the least total disability. It was found that the top 10 diseases caused almost 50 percent of the total disability among our patients. All of this information was obtained from our PAS studies out of Ann Arbor, Mich., and the entire process I have just described took less than 10 minutes of computer time. The only physician

time involved was in agreeing upon the weights for the various factors of disability.

With this information at hand, we then went to each department at their monthly meeting and asked each physician in the department to list the 10 diseases they thought caused most patient disability based on the factors that I have mentioned, and then to rank them 1 to 10—1 greatest, 10 least disability (chart 1).

We collected such a list from each physician and we then provided them with a list of the 10 diseases that did represent those with the greatest amount of total patient disability. We then asked each physician to rerank these 10 diseases from 1 to 10 on the

CHART 1

PHYSICIAN RESPONSE, CHESTNUT HILL HOSPITAL-UNIVERSITY OF ILLINOIS PROJECT

Name ----- Date -----

1. Considering the following factors,
 - Incidence
 - Disability (Length of stay, complications, and mortality)
 - Social disruption (Assuming diseases of middle age working individuals more important than diseases of the very young or very old, all other factors being equal)
 - List the most important conditions that you feel result in admission to Chestnut Hill Hospital (Record only those conditions that come to mind immediately).

Condition	Rank

2. Rank the above (by numbering from 1 to 10) in order of importance.

basis of how much disability caused by each disease might be preventable, so that the disease they ranked first would have the greatest amount of preventable disability (chart 2).

At their next department meeting we told the physicians the result of this little study and they seemed quite interested that not one physician on the hospital staff had selected more than five of the top 10 diseases. Only one physician on the hospital staff selected diverticulitis as one of the top

CHART 2

PHYSICIAN RESPONSE (continued)

Listed here in descending order of importance (considering the factors on the previous page) are the 10 most important conditions (diagnoses) requiring admission to Chestnut Hill Hospital.

- Now rank these conditions (by numbering from 1 to 10) in order of estimated proportion of disability which is preventable particularly as the result of interventions that may be made during hospitalization.

Rank	Condition
-----	Acute coronary occlusion
-----	Delivery
-----	Carcinomatosis
-----	Cerebral-vascular accident
-----	Cirrhosis of the liver
-----	Cholelithiasis
-----	Fracture of the neck of the femur
-----	Aortic aneurysm
-----	Uterine fibromyoma
-----	Diverticulitis

- Place an asterisk after any of the above conditions with which you are especially familiar because of experience, research, or special interest.

10 diseases, although it was tenth. Only three physicians in the Department of Internal Medicine felt that alcoholism with cirrhosis was in the top 10 diseases, and it was fifth. Our physicians seemed impressed with the fact that if we had voted on where to start with an educational program, we would have overlooked some diseases which, in fact, cause most disability among our hospitalized patients. They were also impressed with the fact that we were working with our own data, our patients' needs.

At the same time that we were getting the staff involved with this priority project, we were discussing the establishment of a hospital medical audit committee and audit subcommittees within each department. We defined what we meant by a medical audit and what our precise objectives were in establishing an audit system. We also defined the duties and composition of the major hospital audit committee and each of the departmental subcommittees. We now began to work with each of our audit subcommittees, and we asked each member of each subcommittee to chart the course of the diseases causing the most disability in their department, with ideal treatment, and with no treatment (chart 3).

We then had a series of graphs for each disease (fig. 4) which gave us some idea of the amount of preventable disability associated with that disease. Based on these graphs from each of the members of the var-

CHART 3

PHYSICIAN RESPONSE (continued)

- Please plot in the following graph, using RED pencil for your estimate of the course of the disease with *NO* treatment and GREEN for the course of the disease with *OPTIMUM* treatment.

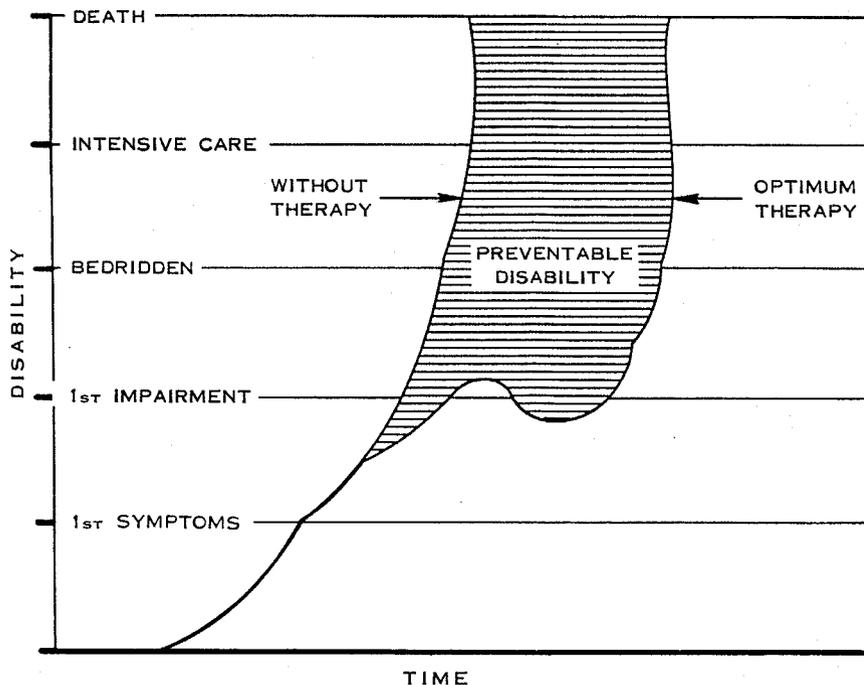
DISABILITY	Death						
	Intensive Care						
	Bedridden						
	First Impairment						
	First Symptoms						
	No Disease						
		T I M E					Average Life Expectancy

ious audit subcommittees and also based on the ranking by each member of each department, we set up a second priority that listed first those diseases which cause the most preventable disability. The priority list obtained from the numbered ranking compared well with that from the graph and both compared well with what we could find in the literature with respect to management of the disease. As you must realize there's not much in the literature in this area which has now become the concern of the field called Prognostic Epidemiology. In any event we at least had a rough estimate of how much disability

might be preventable, sufficient for our second priority scale in which we placed first those diseases with the greatest amount of preventable disability.

In my judgment the precise ranking is not the critical factor but, rather, the approach is the important consideration. Throughout the process we had our anticipated learners participating and working with data on their own patients, and thus what they were doing was both meaningful and relevant to their practice of medicine. The staff saw this as a rational basis for securing a priority for a continuing education program for our

FIGURE 4
PRIORITY OF PREVENTABLE DISABILITY



hospital and it seemed sensible to them to start first with those diseases which cause the most disability, and of these diseases select those which cause the most preventable disability.

Once we had determined the priority listing, with those diseases at the top which had the greatest amount of preventable disability, I proposed that we ask ourselves how should a patient with these high-priority diseases be best managed at Chestnut

Hill Hospital. It seemed to us that if we could establish a criterion of performance or the ideal management of a patient with each of the diseases with the greatest amount of preventable disability we could then look critically at our actual performance to see to what extent our actual performance matches our criterion of performance.

Within each of our audit subcommittees we asked each of the physi-

cians to fill out a criterion of performance work sheet for the high priority diseases. We looked for those things that really made a difference in the management of a patient in prevention, diagnosis, and therapy of disease. After the audit subcommittee in each department had worked out the criterion of performance, it was submitted to the department for adoption. Once the department adopts an ideal or criterion of management or performance, this then becomes a standard against which performance is judged. Chart reviews and patient followups then determine the gap between the adopted criterion performance and the actual performance of our physicians. Our educational program can then be directed at areas where there are the largest gaps. That is, our educational program can be directed at those patient needs which we should be meeting with existing resources but which are not being met because of lack of application of these resources or lack of physician accomplishment. What we have attempted to accomplish therefore, is simply to arrive at a priority of objectives for our educational program by noting where the greatest change in physician behavior is indicated with respect to management of patients, i.e., where actual performance falls farthest short of the criterion or the ideal performance. (If anyone is interested, in discussion period I will describe how we go through this process of working out a criterion performance and getting it adopted.)

This approach worked well in the departments of internal medicine and pediatrics, that is, working out a criterion performance, but the surgeons and obstetricians-gynecologists didn't understand this approach. So in those two departments, in place of working out a criterion performance for those diseases with the most preventable disability, we looked at the actual performance first and then attempted to change those behaviors necessary.

There is a problem in this second method in that we find ourselves looking for things that are easy to monitor through PAS and it would be easy to limit ourselves to these things. But it is a way to get directly to actual performance, and it seems more easily understandable. (I would be happy to review some of our successes and particularly a failure if anyone is interested during the discussion period.)

I have provided you with a description of how we are approaching a program of continuing medical education at Chestnut Hill Hospital. As you have heard, the program is based on the needs of our patients and then on the needs of our physicians in meeting patient needs. We have tried to direct our educational efforts at those disease entities which cause the greatest amount of preventable disability which is not currently being prevented by our physicians' actions or accomplishments. These areas might be said to provide us with the greatest improvement potential with respect to management of our pa-

SKELETON PROGRAM IN CONTINUING EDUCATION AND CLINICAL RESEARCH

WILLIAM H. McBEATH, M.D.
Program Coordinator
Ohio Valley Regional Medical Program

The mission of the Ohio Valley Regional Medical Program is to stimulate and support the development of "regional cooperative arrangements" among the health care resources of the greater Ohio River valley area. The program is a multi-interest effort encouraging the emergence and evolution of formal, voluntary, continuing relationships among the health institutions and personnel of the region. The cooperative activities sponsored in this organizational network will emphasize the education and training of health manpower, research into the problems of delivering comprehensive personal health services, and demonstrations of modern patient care—all within the context of a regional cooperative approach, and all directed particularly toward the problems of heart disease, cancer, stroke, and related conditions. Because of the nature of these priority goals, a major axis for the program's

development will involve arrangements among university medical centers and community hospitals.

Our initial approach to planning a regional medical program has involved a substantial investment of time and effort in the development of a strong, visible, and active regional advisory group of workable size, representative composition, and balanced interest. The first year of our planning grant activities has seen this regional advisory council make its initial efforts at coming to grips with many of the problems reflected in the "issues" topics of this conference-workshop. During 1968, we hope to broaden the base of our planning by involving more auxiliary advisory bodies, and to narrow the focus of our planning by going on to define more precise program objectives, to identify specific alternative strategies, to determine a ranking of our priority needs, to outline a schedule of activity phasing, and to establish methods for measuring progress.

While we have struggled at times with the breadth of operational potential inherent in the provisions of Public Law 89-239, our council has valued the flexibility afforded each regional medical program to maximize its particular strengths in molding its own approach to meeting its peculiar needs. It has been necessary, however, to elaborate on the brief statement of mission and goals given above in order to more clearly communicate the intended direction and anticipated content of the program to

all parties interested in participating. After much deliberation, our council adopted a set of fourteen criteria, each reflecting a goal of the program, which taken together form a standard against which any proposed program element can be compared to program priorities. While several of these criteria relate to the fiscal, technical, and administrative characteristics of a proposal, others more substantively address themselves to the nature of the activities proposed. The first two criteria are crucial in this regard and are quoted here as examples:

The proposal is a cooperative effort.—More than one type of health care interest (e.g., medical schools, hospitals, physicians, voluntary health agencies, etc.) will jointly provide support to, influence control of, and derive benefit from the activities proposed.

The proposal activates a regional approach to health care problems.—Resources and needs of multiple geographic communities will be involved and considered. Proposed activities will be functionally related to other elements and levels of the health services system. Potential benefits will eventually accrue to the entire OVRMP area.

While these still represent abstract statements of principle, they are defined enough to impart significant implication and guidance to potential activity sponsors seeking program endorsement. It is clear our prime interest is in jointly sponsored activities involving different communities and

tients. I have described at some length our diagnostic process. I have hardly mentioned therapy which is where most continuing medical education programs seem to start. I haven't mentioned lectures, visiting speakers, audiovisual aids, two-way radio, TV or teaching machines.

We find that our therapy relatively seldom includes these instructional methods. (Example—appendectomy PAS 1.) Most of our therapy is through the problem solving approach which is the way adults learn best.

Our approach is different. We have changed some physician behavior. We have improved some patient care. We have had some successes and some failures. We can document both.

Finally, as we begin mounting continuing medical education programs under the Regional Medical Program, it might be well to make a diagnosis before providing educational therapy. Diagnosis, and thus therapy, may be different for each region, for each hospital and even for each physician. It also seems pertinent to remember that the purpose of medical education is to meet the needs of our patients.

more than one level of the medical care system.

These program proposal criteria, developed and adopted by our council after considerable study, are serving two main purposes: First, they serve to guide OVRMP staff and potential program participants in their efforts to develop ideas and operational proposals which maximize a mutuality of interest between the sponsor and the program. Second, they will serve to guide the various groups working to culminate the definitive planning phase of OVRMP development. The criteria thus satisfy our felt need for realistic guidelines which give direction and stability through the critical building phases of our operational program.

As our work together has progressed, there has been a steady evolution of consensus as to program philosophy and strategy (to which these criteria testify), but there has also been an interesting corollary development of desire to see sample or model activities begun which might give rather immediate and tangible demonstration to our conception of regional cooperative arrangements, i.e., a regional medical program in action. The feeling was, and is, that the establishment of such demonstration activities would not represent a short circuiting of adequate planning. To the contrary, it is felt that such activities will lend visibility and provide a stimulus to continuation of deliberate, definitive planning; and at the same time will appropriately ac-

celerate the initiation of an operational OVRMP.

The OVRMP SKELETON Program is designed to meet the felt need for immediate, tangible, public demonstration of "regional cooperative arrangements." The SKELETON Program will initially consist of a combination of interrelated education, demonstration, and research activities within and among a defined network of selected cooperating hospitals.

A skeleton can be defined as "something forming a structural framework." We envision that the hospitals selected for participation in the SKELETON Program will be bound together by a variety of affiliations, arrangements, and activities which will make them an effective organizational network for cooperative action. This organizational network of cooperating SKELETON hospitals will form a structural framework upon which we expect subsequently to elaborate a fully operational regional medical program.

Another definition of skeleton is "something reduced to its minimum form or essential parts." This meaning also has relevance to the SKELETON design in that each of the hospitals selected for participation in the program will commit itself to the creation of a critical mass of interrelated education and training, patient care demonstration, and medical care research activities. To the extent this critical mass of combined activities represents new effort for a given hospital, it will become a nu-

cleus of OVRMP-supported effort in that community.

Hospitals that elect to participate in the SKELETON Program will thus be agreeing not only to intensify and expand their own education, research, and service functions, but also to do this in concert with other hospitals of like mind. Similarly, OVRMP will not be merely sponsoring a series of similar, independent, hospital projects; rather we will be supporting the development of an inter-institutional cooperative effort on the part of hospitals with similar needs and goals. If the SKELETON idea is ambitious, it is so because it seeks such a substantial commitment from community hospitals, i.e., they will not just be enriching their existing programs; they will rather be growing in a manner which requires coordination with previously unaffiliated institutions.

The critical mass, the essential nucleus, or the program package which each SKELETON hospital is being asked to undertake with OVRMP support is really a collection of interrelated education, demonstration, and research activities (i.e., "a minimum form of essential parts"). At the core of this aggregate is the formal adoption by the hospital and its medical staff of a major continuing professional education function. While this idea is neither original nor novel in this country, it is relatively new and unusual in our area. Certainly the hospital is being increasingly recognized as a geographic and organizational center

within the community for the provision of personal health services. The substantial role hospitals have traditionally played in nursing education and graduate medical education is also recognized, but the SKELETON program focuses its particular attention upon a more recent movement to organize the community hospital's resources for use in the continuing education of health care practitioners, especially physicians and nurses. SKELETON activities will be directed specifically toward this need for continuing professional education from the community hospital base.

Each SKELETON hospital will make organizational arrangements reflective of its policy commitment to this area of continuing professional education, and indicative of its intention to establish and maintain an ongoing operational program of this type. In larger hospitals, this program may become the responsibility of a full-time director employed by the hospital, preferably selected in consultation with a medical school and holding academic appointment. In smaller hospitals, a part-time or even voluntary director might be substituted and (with local support staff) will serve appropriate hospital committees and direct the institution's activities in this area. Each SKELETON hospital will make a definite and substantial commitment of its resources to the development of this continuing professional education function.

The major duties of hospital directors of continuing professional education (whether full time, part time, or voluntary; and by whatever title known) will be to work with the medical staff, nursing staff, administration, and others in the development of a practitioner-oriented program of continuation education for the multiple health care disciplines found in the hospital. This director will lead the staffs in continual self-diagnosis of their own group needs for continuing education. When continuing education needs have been identified, the director will assist the staffs in establishing specific educational objectives appropriate to their particular needs. With assistance available from outside the institution, the director (frequently working in concert with his colleagues from other hospitals in the SKELETON network who have identified needs similar to his own and defined like objectives) will develop local activities designed to meet these specific objectives. In any locality, actual content of continuing education activities will be determined by the specific needs of practitioners in that community and will be customized to meet those local needs. While they might include some of the traditional elements of continuing medical education (e.g., the lecture, the seminar, the radio conference, the television presentation, the short course, etc.), they will seek especially to meet educational needs by assuring that the hospital's environment and routine operations

are conducive to the creation of learning experiences.

The directors of these new programs will require support if their efforts are to be successful in meeting the continuing education needs of the professional staffs of their hospitals. Direction of this type of continuing professional education program, for example, will require significant appreciation of the principles of educational science, in which many of the new directors may not have had experience or training. Each SKELETON hospital will therefore agree to make its director available to participate in special programs in educational science to be sponsored by OVRMP in conjunction with national and regional education resources. The special training activities would not be designed to train in the technical content of instructional exercises, but rather would intend to assure that each person heading the continuing education effort will have opportunity for formal orientation to the principles and procedures used in identifying educational needs, in establishing educational objectives, in designing educational activities, and in evaluating educational results.

Budgetary support would also be needed for staff, space, and services. Because the critical analysis of professional staff activities in the routine operations of a hospital will be so important to the identification of educational needs and in the evaluation of educational results, each director will require the ability to utilize elec-

tronic data processing technology in the review of hospital patient records. The classic example of this type service is the professional activity study and the medical audit program of the Commission on Professional and Hospital Activities. Such basic analytic tools as PAS-MAP should certainly be available to these directors, and the potential for special studies and activities will also be required.

A third type of support relates to the help each hospital in the network would receive from the others affiliated with it. In identifying needs and defining objectives, each hospital will act rather independently; however, in the planning and implementation of education activities, it is expected that many needs found common to several hospital communities will be more effectively met through a joint effort on the part of several interested hospitals. Educational activities will not always be under the exclusive sponsorship of the hospital, but will frequently involve cosponsorship with professional societies, voluntary health agencies, universities, and other institutions with appropriate interest in the continuing education of health care personnel. Thus the actual planning and development of each hospital's continuing professional education program might be viewed as a local activity, with appropriate support from outside sources as indicated and desired. On the other hand, the implementation and operation of many continuation

education activities will utilize a regional approach and be jointly sponsored by a collection of hospitals and other health interests.

While the commitment to a continuing professional education effort represents the most substantial element of SKELETON program participation, another major component of such affiliation will be the adoption of a patient care demonstration. Hospitals desiring to take part in the SKELETON activity are expected to choose at least one of three patient care demonstrations suggested by the program. These three are: (1) A hospital-based screening activity (preferably emphasizing early cancer detection); (2) an intensive coronary care program; and (3) a stroke management program. Each hospital's selection of a specific patient care demonstration will be based upon its own priority needs. In a few cases, other patient care demonstrations may be involved. One reason for the limited choice of patient care demonstrations is that this demonstration activity in each hospital will not be a completely autonomous program standing alone. Like the continuing education effort within each hospital, the patient care demonstration activity will also develop in a fashion such as to encourage interinstitutional cooperation among hospitals carrying on similar demonstrations.

Several areas of such potential interhospital cooperation have been identified. It will be expected that the

training needs of all hospitals with a given demonstration can be planned for collectively and met through common design and development of basic introductory programs and periodic refresher exercises to be utilized by all participants. Cooperative development of minimum professional standards, and the drafting of model suggested guidelines for operation, will be another aspect of interinstitution cooperation. Each institution will participate in the selection of data to be collected by all participants in uniform fashion; and after such collection, the data will be pooled for joint analysis by the group as a whole. Comparative evaluation of activities can be engaged in by each demonstration director, both alone and in association with his colleagues.

It is felt that there will also be considerable opportunity for collaboration and coordination in the actual operation of the demonstrations. Since the SKELETON network is expected to include hospitals of various sizes and at all levels of the health care system, it can be expected that some demonstrations will be staffed and equipped at more substantial levels than others. The creation of functional relationship between the various types of units in the network should prove mutually advantageous. This can be seen in the example of coronary care units where, for example, institutions with 24-hour resident physician house staff and CCU nursing supervisor coverage can provide (by the use of telecommunication

connections between coronary care units) substantial immediate consultative support to coronary care unit personnel in other locations without this level of staffing. This type of mutual support will be more realistic and valuable because of the common training program shared by personnel of the cooperating institutions, the similarity of operating procedures among the units, the continuing relationship maintained by the directors of the respective units in their planning and evaluation meetings, and the common identification which each will feel in being a participant in the OVRMP SKELETON Program.

The patient care demonstrations not only represent intercommunity cooperation by hospitals but also promise to be the type of undertaking which will be advantaged by extensive cosponsorship between the hospital and other local health interests within its own community. Most of the patient care demonstrations will provide substantial areas of potential activity for interested public health departments and voluntary health agencies which desire to cosponsor these functions.

The third critical mass element required of SKELETON participants is research activity. The type of research envisioned as most appropriate for hospitals in the SKELETON context is that which has been implied in the above descriptions of the continuing education and patient care demonstration functions. Critical review of professional activities, for example,

can represent a very meaningful form of patient care research. It may or may not result in dramatic new findings which the sponsoring hospital will desire to have published for a waiting world. Hopefully, however, it will frequently result in findings which are of interest to the professional of the local hospital staff, and which will be utilized, not in the publish or perish cycle, but rather as guides to the hospital's own staff functions and operations. It is this type of patient care research which is seen as most pertinent to the SKELETON effort.

As has already been suggested in discussing the patient care demonstrations, they can be expected to give rise to the opportunity for different types of epidemiological and clinical research related to the care being demonstrated. Advance agreement as to study design and data collection by all those participating will permit a pooling of observational experience not available to any individual researcher, nor to isolated independent studies. This type of research arrangement may also offer a promise of significant contributions to our knowledge concerning the delivery of health services.

In addition to these two major areas of research activity, each hospital may be asked to help with special studies in the evaluation of the Ohio Valley Regional Medical Program itself. They can also be expected to identify other areas in patient care research which are of special interest to the hospital staff,

and such activities would be encouraged by the program.

While the continuing professional education, patient care demonstration, and medical care research elements represent the major triad of activity included in the SKELETON package, other elements of the program are envisioned. We anticipated that each SKELETON hospital will be linked to the regional library extension service being planned for OVRMP affiliates. This effort will foster the development of local bibliographic information capabilities by making a supply of printed information materials more readily accessible to practitioners, by assisting local hospitals with the maintenance of appropriate core collections, and by developing training programs and consultation services for hospital librarians. It also represents another user of the telecommunications network being planned.

SKELETON hospitals will also be given priority in television activities developed with OVRMP sponsorship. It is our feeling that hospitals with an administration and medical staff sensitive to the value of SKELETON-type programs, and active in such self-improvement and community service programs, will be optimal sites for our initial experimentation and demonstration in the use of television as an educational aid.

There are also other program areas of interest which our regional advisory council has already identified as being of special interest and relevance

to OVRMP. Among these are (1) programs of undergraduate and graduate medical education emphasizing comprehensive care and utilizing community hospitals and practitioners, (2) programs of decentralized university training for new types of paramedical personnel utilizing community resources, and (3) programs testing and demonstrating computer applications in medicine. SKELETON hospitals can be expected to receive priority should their interests develop along these lines.

Our three university medical centers are being looked to for substantial support in this SKELETON program. Their full participation is a crucial element critical to its success. Their heavy involvement in education has been marked in recent years by increasing concern with the process, the content, and the quality of all phases of professional education and training. Our medical centers play a large roll in existing continuing medical education activities and will be looked to for a continuation and expansion of these programs. The development of active, interested, and qualified individuals scattered among SKELETON hospitals throughout the region with a concern for continuing professional education can only serve as a stimulus to improvement of the medical centers' current programs. It is hoped that SKELETON hospitals will seek medical school affiliation for their continuing professional education directors. This type of link would seem of great value to both the schools

and the hospitals. It would enhance a communication between these levels of the health care system and facilitate efforts on the part of each to develop cooperative education activities of all types.

The medical centers and their affiliated hospitals are frequently primary sites for the demonstration of patient care innovations. It would certainly seem that the cooperation of these primary teaching hospitals and community hospitals in similar patient care demonstrations could be mutually instructive, and advantageous to us all.

The SKELETON Program described here has recently been adopted by our regional advisory council for emphasis during current preparation of our initial operational grant request. An attractive booklet describing the SKELETON package has recently been prepared and distributed to all the hospitals of our region. Their response is most encouraging in that it is already clear that several hospitals of different size, geographic location, and program emphasis are receptive to the challenge and seriously interested in the potential of the SKELETON Program. Our staff is now working with these hospitals.

In proper perspective, the SKELETON Program is viewed only as a beginning demonstration of "regional cooperative arrangements" and their potential for our area. This first structural framework will initially include relatively few of the many fine

hospitals in our region, but as an organizational network it can be expected to extend later to other institutions throughout our area. The "minimum form of essential parts," or the critical mass activities within each SKELETON hospital can also be expected over time to expand within many of these institutions and communities to embrace other activity areas. Likewise, at its beginning the SKELETON hospitals will show a relative uniformity of program which is expected to become more diversified as the network extends to additional institutions and expands to other areas of need.

While we are not prepared to specify the ultimate form and function of that corporate entity known as a Regional Medical Program, we do believe that the basic skeleton of regional cooperative arrangements can and should be brought into being.

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AN EXPERIMENTAL MODEL IN ORGANIZATION OF A REGIONAL MEDICAL PROGRAM

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Program Manager
Intermountain Regional Medical Program

An almost explosive development of the Intermountain Regional Medical Program in 1967—from the limited activity of the planning phase to the concurrent operation of 11 pilot projects—threw a very bright spotlight on organizational problems. From a nucleus of three physicians and 12 additional staff people in January 1967, the IRMP expanded to 17 physicians, four Ph. D.'s, five nurses, seven medical students, and 73 other technical, administrative and clerical personnel in January 1968 (chart I). The total of 106 includes 49 part-time staff members, but this growth has had an acute impact on the management problems of the program and the development of the regional organization.

As with a number of other regional medical programs, the Intermountain region started from a base in continuing medical education, established by

INTERMOUNTAIN REGIONAL MEDICAL PROGRAM

STAFF GROWTH IN 1967

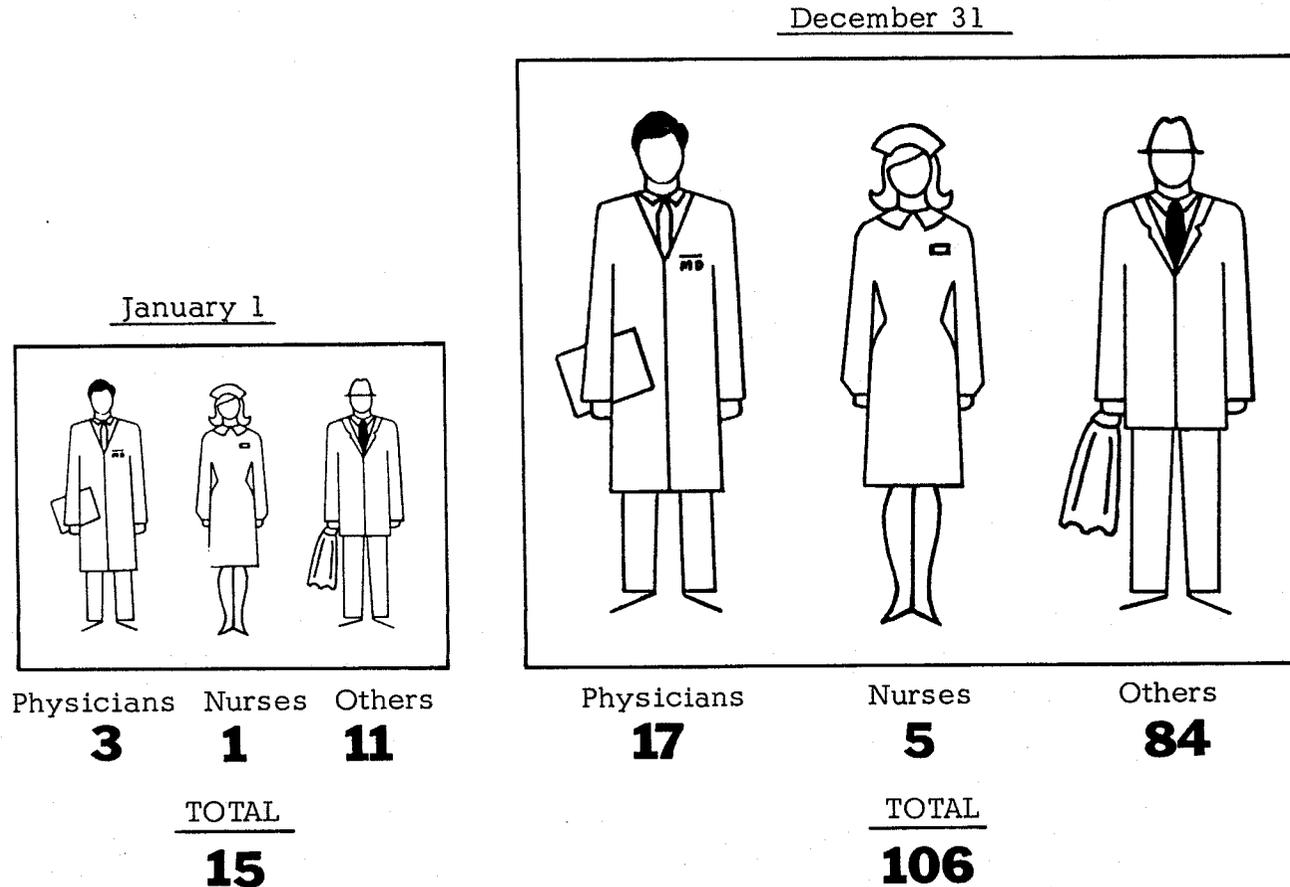


CHART I

the post-graduate division of a medical college. Initial staffing tended to follow a conventional pattern, influenced of course by the categorical emphasis of Public Law 89-239. A few physicians, with interests in the objectives of the regional medical program, began the efforts. Three or four supporting personnel, with experience in hospital administration, nursing, or medical school administration, joined the program. Plans for growth anticipated a continuation of such staffing, as the needs developed.

Problems turned up, however, with unexpected promptness. Although obviously desirable for physicians to serve in key positions, with a full-time commitment to the purposes of the RMP, an insufficient number were willing or capable of doing this. The majority who have become involved have done so as part-time participants. Few have accepted administrative or managerial responsibilities except on an interim basis. The traditional role of the physician as an individual practitioner and his aversion to administrative functions seem to have been major obstacles to staffing of the IRMP. Doctors are all too familiar with outstanding teachers, investigators, and practitioners who became unproductive in their chosen professional disciplines, when too much time and effort were given to administration.

Yet the need for administrative talent is apparent, in the very language of the regional medical pro-

gram legislation. The emphasis on cooperative arrangements has implications with respect to communications—formal and informal, to agreements or contracts, and to development of structured relationships. Grants management requires fiscal responsibility and budgeting and accounting skills. Planning connotes goals, and resource management to insure their attainment. Pilot projects infer design, program building, and performance measurement.

Medical planning, interprofessional communication, teaching, and medical investigative efforts must of course be directed by competent physicians, nurses, and trained health-care professionals. In each major disease category and area of concern, a medical director and perhaps additional physicians or health care personnel are needed to develop and direct specific projects. These include educational activities, demonstrations, development, and application of new techniques or equipment for patient care. Their work requires the assistance of other resource personnel also—engineers, education specialists, behavioral scientists—to perform systems analysis and curriculum development and devise testing and evaluation procedures.

In these various project areas, however, many administrative duties also require attention. Program planning skills are a fundamental need. Proposal preparation, detailed task analysis of pilot projects, time and effort estimates, PERT charting, physical

facility arrangements, and nonscientific report writing are other administrative functions to be performed. If responsibility for these is assigned to a physician, utilization of his medical experience is lessened and his interest in the program is diluted by tasks that are distasteful to him. The

work is probably less effectively done than if assigned to an administrative specialist. Even if these constraints had been acceptable, however, finding enough physicians to give detailed management to the pilot projects was impossible in the time available.

Nonmedical planning and manage-

ment duties were therefore assigned to the administrative personnel who had come into the organization in its early stages. These included an administrative assistant to the dean of the College of Medicine, a professional hospital administrator, an assistant to the State's executive

INTERMOUNTAIN REGIONAL MEDICAL PROGRAM

ADMINISTRATIVE SERVICES DIVISION

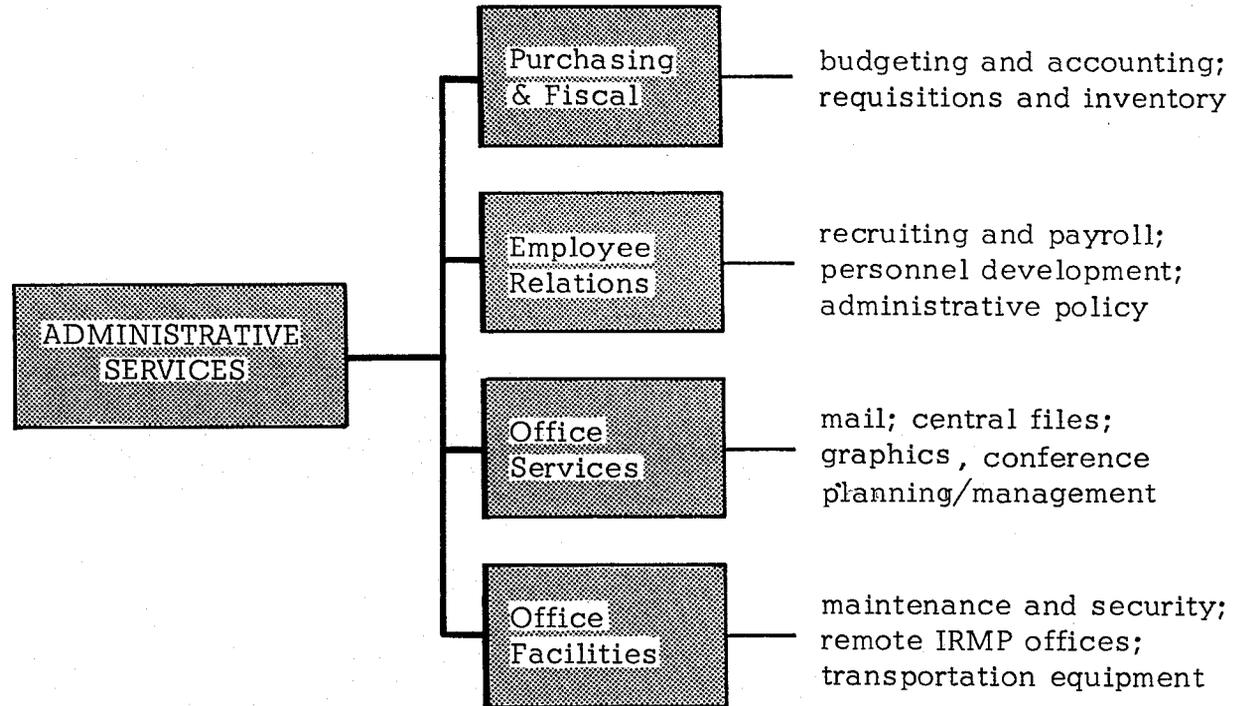


CHART II

director for the American Cancer Society and a supervisor of nursing. Their backgrounds and experience were extremely helpful, of course.

It became apparent, however, that administrative management services, even when the organization was small, would be increasingly important as pilot projects achieved operational status. As these needs became more urgent, the IRMP turned to the University of Utah's College of Business for consultation. In a series of meetings with the chairman of the department of management, the administrative problems of the IRMP were identified and investigated. A basic philosophy of organization was agreed upon which called for assignment of administrative division chiefs to provide support to the medical and educational program directors in each of the principal project areas. A program manager was recruited to give direction to the division chiefs and to be responsible to the coordinator of the IRMP for all the administrative program control activities.

In subsequent analyses, the administrative services have been more fully defined, as indicated in chart II. The grouping shows how related functions may be categorized and is not intended to specify manning requirements. A qualified office manager, with the necessary secretarial and clerical help, might handle all of these activities in the first phase of

potential growth in managerial and supervisory personnel needs.

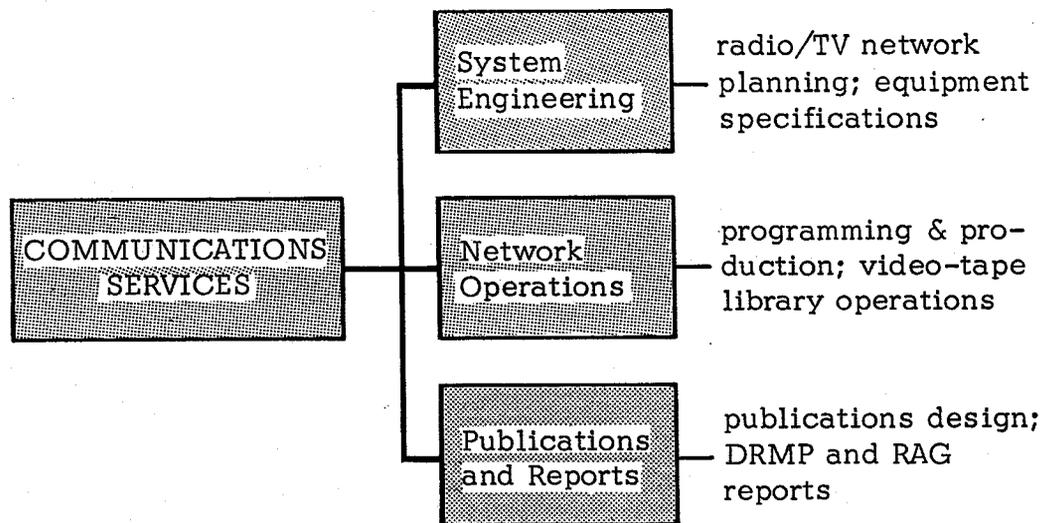
Communications services, which are necessary to the development of a regional educational program, and also to the process of regionalization itself, comprise another group of support, or logistics, activities. These are shown in chart III. Again, staff requirements increase as program development proceeds into pilot project operations. The groups shown are those currently required for the IRMP.

The administration of these two groups of activities must recognize the purposes and commitments of the program but does not require prior experience in medicine. It does require technical competence in budgeting and accounting, personnel management, radio and television programming and production, etc. If any of these services is available from the grantee institution, the staff of an RMP can be reduced, but the requirement for each function must be recognized and met in one way or

another. Furthermore, as the scope of the RMP activity increases and additional administrators are required, the need for general management people, to direct division chiefs and departmental supervisors and provide guidance for continued forward planning, becomes more pressing. The combining of these two supporting divisions with the project administration divisions, under the program manager, completes the management organization structure. It is illustrated in chart IV. The need

INTERMOUNTAIN REGIONAL MEDICAL PROGRAM

COMMUNICATIONS SERVICES DIVISION



INTERMOUNTAIN REGIONAL MEDICAL PROGRAM

PROGRAM MANAGEMENT AND ADMINISTRATION

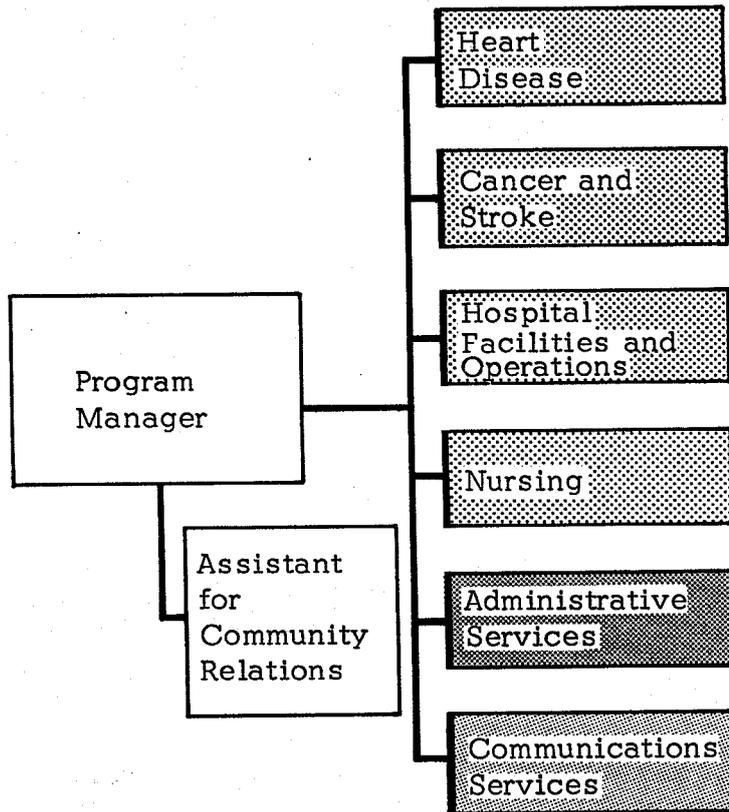


CHART IV

to develop and maintain an effective community liaison function is met by assignment of a skilled assistant to the program manager for community relations.

Thus the supportive and administrative responsibilities are differentiated from medical planning, teaching, consultative and investigative efforts. The nature of the job to be done dictates the kind of talent to be sought. The organization structure developed from this analysis is a bilateral one which recognizes the administrative manager as a professional, contributing in his own discipline and complementing the work of the physician, engineer, behavioral, or educational specialist. The completed IRMP organization, based on these concepts, is shown in chart V.

The chart departs quite deliberately from conventional forms. It is oriented in parallel vertical columns, rather than in the usual horizontal echelons. It provides authority relationships parallel to perceived status; physicians supervising physicians and administrators directing administrators. Hopefully it will establish a team concept, where each individual practices the profession in which he has background and experience. This should minimize the concern for status which might exist between the scientific staff and the administrative managers. The medical and scientific manpower is allowed to focus on planning, teaching and investigation while skilled managers coordinate, organize and control the application of all re-

sources toward completion of the various projects.

The success of the IRMP depends on regular, cooperative interaction and communication of all medical and educational personnel with the professional management staff. Such communication is fostered and assisted by the associate coordinator and the program manager, who can solve most problems through consultation and review with the persons concerned. Unresolved differences are arbitrated by the coordinator in the context of the primary objectives of the program.

This organization model of the IRMP is based on the premise that professionals in any discipline perform most effectively in the areas of their specialization. This obviates lengthy orientation periods which might otherwise be required for physicians struggling with administrative problems. With good communication and cooperation between the two staffs, it provides an effective functional organization from the beginning. It promotes innovation and creativity, in management as well as in the medical aspects of regional medical programs. New ideas are generally more likely to come from people working in their own fields of competence and interest rather than in areas unfamiliar to them. Such ideas may find a more favorable reception when submitted to a supervisor whose experience and interest are in the same areas as those of the originator.

INTERMOUNTAIN REGIONAL MEDICAL PROGRAM

ORGANIZATION CHART

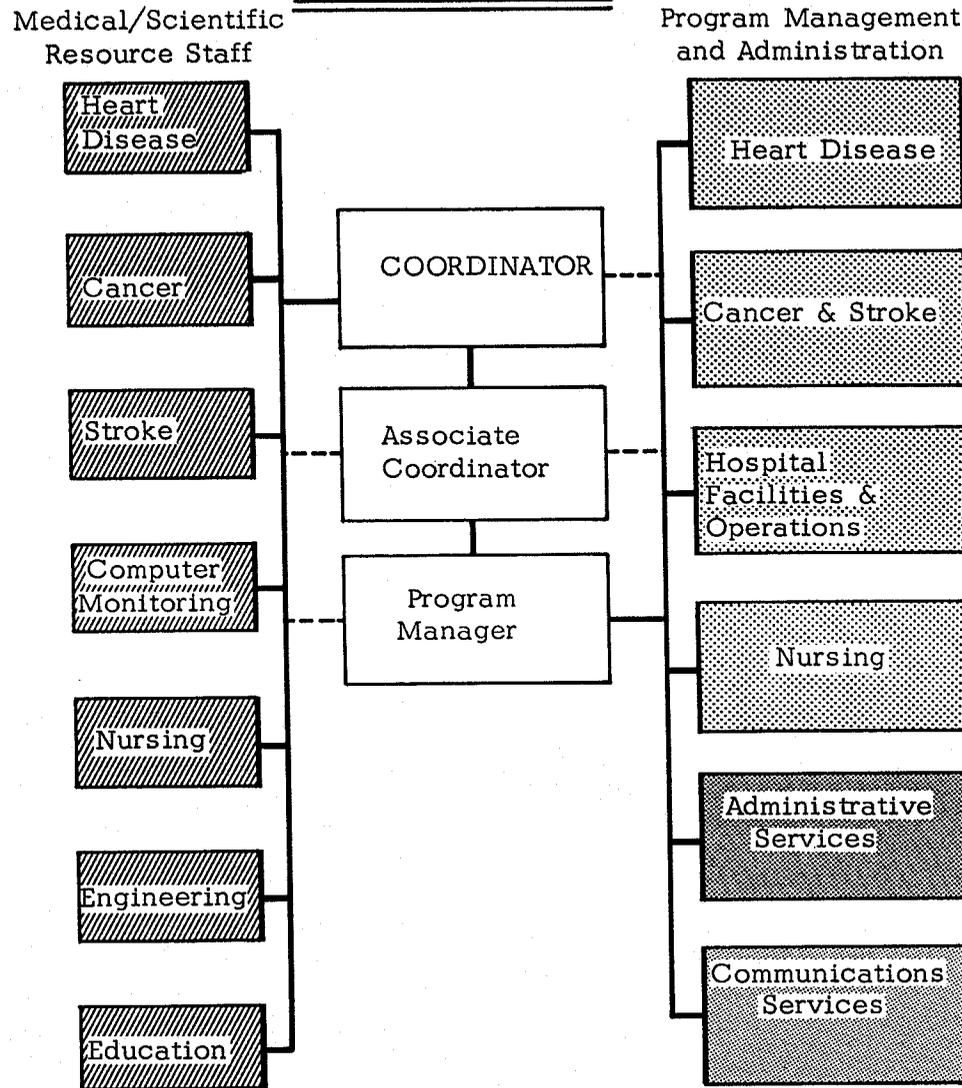


CHART V

Nevertheless, the need for perception and appreciation of the whole program, and of each function in it, is recognized. Cross training of both the medical and educational staff and the managerial group is accomplished through planned orientation programs, classes, and seminars and in joint staff meetings. Since the regional medical program is itself an experimental approach, IRMP staff members participate in quarterly seminars designed to develop receptive attitudes toward new ideas. Key administrative personnel attend meetings of the medical staff to become acquainted with the objectives and the operational plans and activities in the various categorical project areas. Orientation lectures and demonstrations are given to secretarial and clerical people.

A weekly management development class is held for division chiefs and their principal assistants. Program planning techniques critical path or PERT scheduling methods, employee relations and development of communications skills are among the topics studied. Curriculum is planned by the program manager and a management consultant from the University of Utah's College of Business, who generally conducts the classes. Suggestions for subject matter are solicited from the division chiefs. The coordinator and associate coordinator and some of the medical staff of IRMP also attend the management classes.

To assist in implementation of IRMP programs throughout the region, community representatives, medical education coordinators and core faculty members have been appointed in some communities and institutions. Physicians with an interest in education and in the other objectives of the regional medical program and with a knowledge of their community or institution and the elements which influence patient care become part of the IRMP staff. They devote a specified percentage of their time and effort to the program. A detailed outline of responsibilities is furnished them and is supplemented by a planned orientation with IRMP staff members. Provision is made for continuing planning and communication, so that the representative or coordinator becomes an effective part of the IRMP organization.

In summary, then, the IRMP organization developed from a recognition of the duality of talents—medical and managerial—needed in the program. Professional resource personnel—physicians, nurses, engineers, behavioral and educational specialists—plan and direct the projects in each major disease category. A program manager, responsible to the coordinator, supervises an administrative chief for each operational division, and two support services groups. The organization structure parallels the work requirements and the individuals' own perceptions of their special talents. A staff development program strengthens and ex-

tends existing skills and provides cross-training in both scientific and administrative disciplines. The plan will accommodate additional projects through controlled expansion of the central staff and appointment of coordinating personnel as needed throughout the region.

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MULTIPROJECT PLANNING

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Medical Program

Much has been written concerning planning for business, services, and not infrequently projects. This paper is intended to define a technique to aid the administrator in planning and carrying out projects.

Planning may be described as the process of defining goals and objectives and then determining the necessary actions, materials, moneys, manpower, and sequential effort needed to attain these objectives.

As the number of programs and projects and their resultant products and services increases, the difficulties and complexities of effort to successfully carry out the program also increase, not arithmetically, but geometrically due to the increasing number of interdependent relationships which then exist. In order to facilitate the planning process under these complex conditions, the following technique called project planning analysis is described.

Basically this process may be de-

finied as the breakdown of projects into their various elements, and the review of these elements from the standpoint of the parts rather than as a whole.

The prime objective of project planning analysis is to provide a readily available and centralized source of program-project information which reveals the inter- and intra-dependency relationships both within and among projects.

When a number of projects are interrelated and depend upon one another, failure to meet a resource requirement, target, or schedule at any point may have a disastrous effect not only upon the project wherein the failure occurred but as well may have the same effect upon all related schedules and projects. Problems of this nature are minimized or may be prevented by providing visibility to all types of information through planning analysis.

Through the application of this activity, project, program status, resources, and schedule information are converted in a correlated manner to provide instant visibility for both in individual projects or the total program effort. As a result, planning decision may be based on a logical and organized series of facts.

Through project planning analysis a focal point is set up for centralize information providing program and project directors with a basis for effectively communicating with respect to monitoring, timing, and evaluating progress toward objectives.

Relationship to Other Projects:

	Type
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
11.	
12.	

Needed Personnel:

Position Title	Percent of time	When needed	Source	Budget No.

Equipment Needed:

Space Needed:

Type	Location	Square footage	Source

Additional:

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A SYSTEMS APPROACH TO REGIONAL MEDICAL PROGRAM PLANNING

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 Wisconsin Regional Medical Program

and

PAUL C. NUTT
 GERALD NADLER, PH. D.

Systems or industrial engineering, frequently used in designing large scale complex systems, has been employed in the planning process of the Wisconsin Regional Medical Program, Inc. (WRMP). This profession has at least three strengths that render it useful for such activities; (1) a systems design strategy, a framework for thinking that structures the planning process in a more effective fashion, (2) an interdisciplinary framework that brings together various professionals to work jointly in such settings, and (3) tools and techniques that can be used in allocating resources required in the master plan.

At its inception, the WRMP decided to use systems engineering as a major component of its planning process. Through a contract with the

Engineering Experiment Station of the University of Wisconsin, staff support was obtained to provide industrial engineering and operations research services. In order to obtain the continuity needed to make these services productive, an industrial engineer was appointed chairman of the planning committee.

Essentially there are three levels at which planning proceeds in the WRMP: conceptual, strategic, and operational (fig. 1). Conceptual planning develops the goals and objectives of the WRMP and provides the mechanism for improving them through a continual assessment of the WRMP's strengths and weaknesses. Strategic planning is the level at which the WRMP determines what it should be doing now and in the future to achieve the objectives estab-

FIGURE 1
PLANNING LEVELS OF THE WISCONSIN REGIONAL MEDICAL PROGRAM

Conceptual Planning:

- Goal development
- Objective determination
- Program assessment

Strategic Planning:

- Project selection
- Time phasing

Operational Planning:

- Project development
- Proposal preparation

lished at the conceptual planning level. Operational planning develops the means of implementing the specific programs conceived at the strategic level. This paper will describe (1) the methods by which these three levels of planning have been implemented, and (2) the results obtained from the planning process.

Conceptual planning is being accomplished through the planning committee of the WRMP. This 15-man group, structured to include the knowledge and interest of many health related professions, has representation from many disciplines including key branches of medicine: nursing, engineering, law, economics, social work, and hospital administration (fig. 2).

This group chose to employ a systems design strategy called the IDEALS concept in accomplishing its charge. The IDEALS concept involves three basic ideas: (1) a basic and universally applicable definition of a system, which is usable for such a large and complex system as heart, stroke, and cancer care for citizens of the region; (2) a design strategy or approach which minimizes the amount of data collected, maximizes the benefits of the resulting designs, includes built-in adaptability to future change as part of the system design, and increases the utilization of the skills of the professional personnel involved in the design efforts; and (3) a program for an organization, such as WRMP, which enables many people to become involved with the

FIGURE 2

REPRESENTATION ON THE WISCONSIN REGIONAL MEDICAL PROGRAM PLANNING COMMITTEE

- Biomedical engineer
- Board of health representative (assistant State health officer)
- General practitioner
- Health data collection agency representative
- Hospital administrator
- Hospital association director
- Industrial engineers
- Medical school representative
- Nurse
- Social worker
- State medical society representative
- Subregional planning council director
- Wisconsin Regional Medical Program coordinator
- Wisconsin Regional Medical Program assistant regional coordinators
- Chairmen of strategic planning study groups

positive design strategy on a project so that the results are more immediately usable with higher motivation in the organization (fig. 3).

From November 1966 until April 1967 the planning committee developed the goals and objectives of the WRMP and expanded them into components that could be effectively analyzed in the strategic planning phase (fig. 4). Although the improvement of one or several health resources, such as facilities, manpower or equipment, was important, the

FIGURE 3

DEFINITION OF THE IDEALS CONCEPT

The IDEALS concept is the systematic investigation of contemplated and present systems to formulate, through the ideal system strategy, the easiest and most effective systems for achieving necessary functions.

committee felt these were only means to an end. The selected goal was to "Improve the health status of citizens of the region." More specifically, the objectives were to reduce the incidence of, prevalence of, duration of, and mortality from heart disease, cancer, and stroke. Because these were frequently crippling diseases it was also important to include a fifth objective: to improve quality of whole

FIGURE 4

GOALS AND OBJECTIVES OF THE WISCONSIN REGIONAL MEDICAL PROGRAM

Goal: Improve Health Status of Citizens of the Region

Objectives:

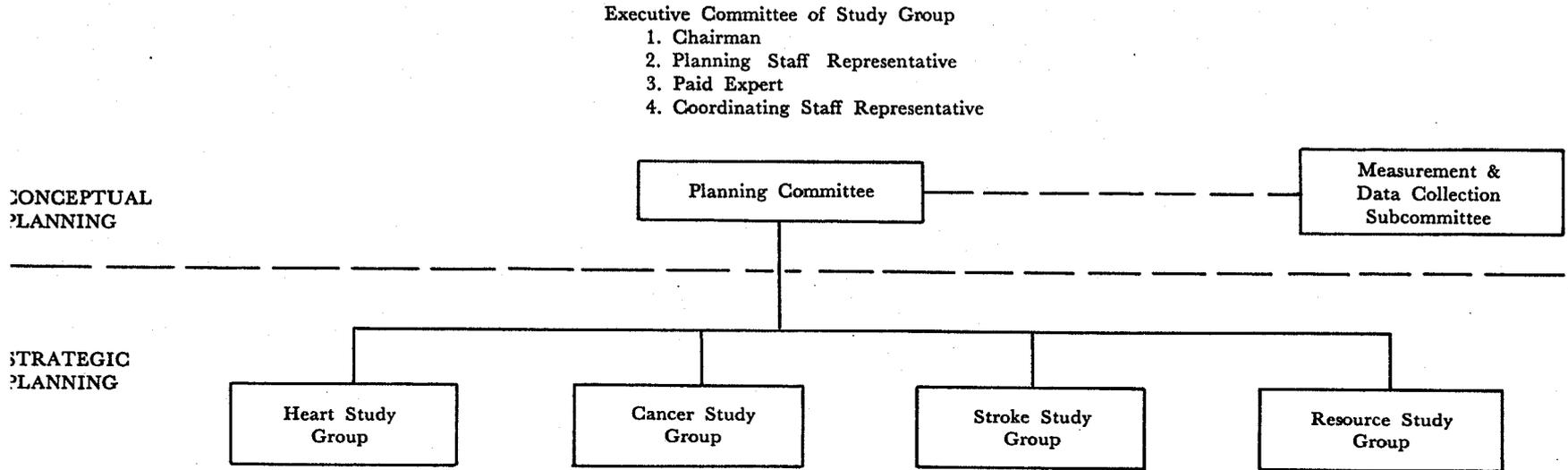
1. Reduce incidence of heart disease, cancer, and stroke
2. Reduce duration of heart disease, cancer, and stroke
3. Reduce prevalence of heart disease, cancer, and stroke
4. Reduce mortality of heart disease, cancer, and stroke
5. Improve quality of whole life for sufferers of heart disease, cancer, and stroke

life; the degree to which a sufferer can be effectively integrated back into society.

Clearly, incidence could be reduced through better disease prevention. Prevalence, duration, and mortality could be reduced through early diagnosis and more effective treatment. Quality of whole life could be improved through better post-treatment health care. However, within each of these: Prevention, early diagnosis, treatment, and post-treatment health care, there are many different programs that could be developed. A difficult task, to select programs where WRMP funds have the greatest benefit, was significantly simplified when the planning committee developed the WRMP "model" (fig. 5), based on the system pyramid technique. Through a successive expansion of prevention, diagnosis, treatment, and post-treatment health care, the left-hand side of the model gives a nearly exhaustive set of programs in which the WRMP could engage. The right hand side lists the resources that could be used to implement each possible program component. An example of how the model is used is given by following the heavy black line from right to left on figure 5. WRMP could provide equipment to carry out an action program in automated methods for collection of history information in the diagnosis of heart disease. The model describes the set of potential programs from which the strategic planning level selects the

FIGURE 6

ORGANIZATION OF CONCEPTUAL AND STRATEGIC PLANNING ORGANIZATION



program to be developed by WRMP. Without the model it could be impossible to see the alternatives open to WRMP, and the project selection process would be less effective. The number of possible program components for just the broad categories of heart, stroke, and cancer is nearly 10,000. The model, now programmed or computer processing, can assure comprehensive programs by selecting potential programs that are related to ones being considered for funding.

In order to further improve the project selection process, the planning committee developed guidelines to be used at the strategic and operational levels. The emphasis of these guide-

lines was on getting benefits to the citizens in the shortest amount of time. This meant research programs had lower priority than action and education programs. It also meant projects were to be selected on the basis of need and potential to meet that need.

The planning committee also has the responsibility for evaluating the progress of the WRMP. Its staff, functioning at the strategic and operational planning levels, provide an informal communication channel to provide feedback on the strengths and weaknesses of the planning function. Chairmen of all strategic planning bodies are members of the planning

committee and report regularly on their progress. Operational planning progress is evaluated by periodic reports and by review and approval of all project proposals.

The responsibility for review of operating programs has been delegated to the strategic planning level. The planning committee receives information on the progress of these programs through existing communication channels. The formal mechanism for reviewing these programs is in the early stages of development and will be used to assess the first year's progress of current operating programs.

Strategic planning, requiring depth of knowledge in specific areas of

health care, has been delegated by the planning committee to four study groups: Heart disease, cancer, stroke, and resources. Each study group has the responsibility for (1) developing a comprehensive program describing the programs to be developed now and in the future and establishing a time table for each, (2) delegating these programs to the appropriate operational planning body, (3) reviewing the programs, once developed, to assure adequate medical methodology, and (4) evaluating the progress of operational programs.

An executive committee, consisting of the study group chairman, a planning staff representative, a coordina-

ting staff representative, and a paid part-time expert in the study group's interest plans, prepares and coordinates the study group meetings. The remaining members of the disease category study groups, physicians and health related personnel with in-depth knowledge in the broad disease category in question, are selected on the basis of interest in WRMP and ability to promote regionally cooperative programs. They frequently participate in the development of specific programs on the operational level and often will be recipients of funds once the program is funded.

The comprehensive programs are developed using a methodology that avoids collection of massive amounts of empirical data. It is based on the premise that regional needs and potential to meet the needs can be adequately assessed by study group members. We assume that our committees compose men and women who know the Wisconsin region, the state of medical art in their fields, and the related ongoing activity there. By tapping this resource, there should be no need to collect data except in cases where it is needed to meet specific needs.

The first step is to select a general disease entity to consider. It should be one where need is great for improved quality of whole life or reduced incidence, prevalence, duration, or mortality, but where there also exists strong potential for improvement. For instance, the cancer committee selected gastrointestinal

cancer for the first comprehensive program. The next step is to rank each specific disease in terms of need. Then the same diseases are ranked in terms of potential to meet the need. It was apparent, for instance, that the greatest needs for gastrointestinal cancer were in stomach, colon, and rectal cancer. However, potential to meet the need appeared to be greatest in colon and rectal cancer. The disease entity ranking the highest is then selected for further consideration.

The prevention, early diagnosis, treatment, and post-treatment health care sections of the model are reviewed, one at a time, to find those components that have strong potential for meeting the need. The resulting comprehensive program is expanded from a specific disease site to the general by then reviewing the model to find components that would benefit other sites. Priorities on development of these program components are determined on the basis of resource availability. Proposals submitted to the study groups are reviewed to find those paralleling needed programs. If they appear to be well developed, regional program proposers are encouraged and given support by WRMP to develop their proposals further. If the proposal needs significant work to transform it into a truly significant program an ad hoc committee is formed to develop an operational program. When no existing proposal parallels a comprehensive program component, the

study group decides whether to postpone its development or form an ad hoc committee for developing a proposal.

Operational planning is accomplished at the ad hoc subcommittee levels. Once a specific program is selected for development by a study group, those individuals considered to be potential collaborators and/or experts in the area of interest gather to develop the program and prepare a proposal for funding. These programs, while emanating from an expressed need within a categorical disease study group, frequently take on a noncategorical nature. For instance, the multiphasic screening committee emanated from the heart study group but the final program will be designed to detect existence of all diseases. For this reason, control of such a committee may shift from the emanating body to a more appropriate group. For instance, the program in health education may be transferred from cancer study group control to resource study group control.

At present there are 11 operational committees. Four of these, health education, pediatric cancer, registry, and radiotherapy are under cancer study group control. Five, intensive-coronary care, screening, pediatric cardiology, hypertension, and thromboembolism are under heart study group control. Two, post-graduate education, and nursing, relate to the resource study group (see fig. 7). Each of these committees is either presently

developing proposals for submission or has been funded for an operational program and is now expanding this program to reach more people.

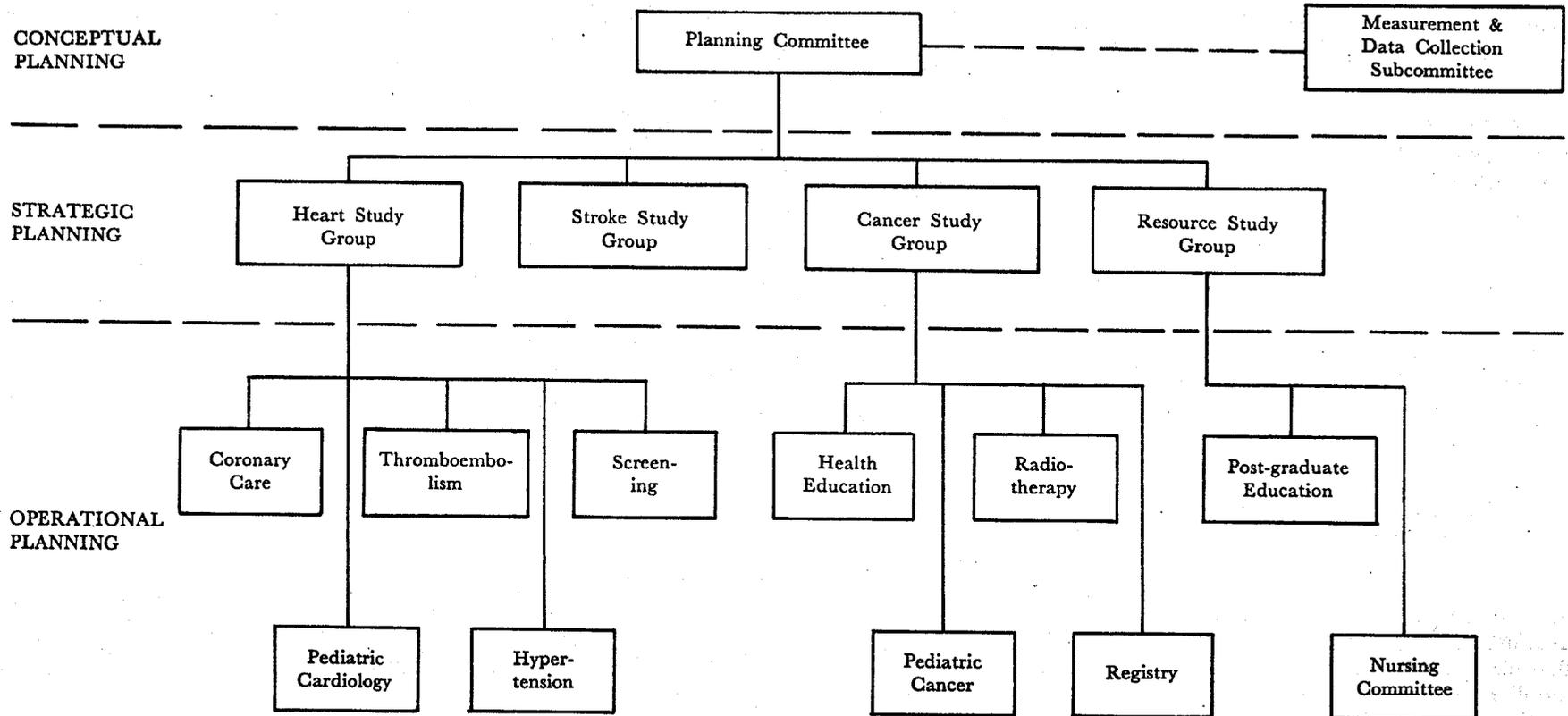
Each committee has planning staff representation and, if the need arises, may obtain funds to support a project assistant to prepare materials and organize data. Occasionally a potential collaborator asked to devote a significant amount of time to proposal development may also be financially supported from planning funds.

Operational subcommittees perform their function in two stages: program development and proposal preparation. When a program is given to them, such as multiphasic screening, this group designs the system (see fig. 8). All systems consist of seven components: (1) the function—this is equivalent to the program selected by the strategic planning committee, (2) the inputs—this could include patients, medicine, and various other (definition of input), (3) the facilities and equipment needed, (4) the manpower needed, (5) the sequence needed—this is the method of combining the resources to produce the desired result, (6) the output or desired result, and (7) the environment—those factors important in the design of the system that cannot be controlled.

When the committee can describe each of these elements in terms of how much, when, and where, they have effectively developed the program. The planning committee staff of systems engineers provides the sys-

FIGURE 7

PLANNING ORGANIZATION OF THE WISCONSIN REGIONAL MEDICAL PROGRAM



tems design strategy, described earlier in the paper, that guides the program development on the microscopic level just as it guided it on the macroscopic level. The other members of the group provide the multidisciplinary expertise so necessary to develop good systems or programs. Finally the

systems engineer provides tools necessary to allocate resources effectively. Early in WRMP development, the planning committee prepared a list of criteria for evaluating proposals coming to them for approval (see appendix 1). These criteria describe the elements considered to be desir-

able in program content and proposal evaluation. Measures of the degree to which a program satisfies the criteria are being developed. All criteria do not assume equal importance in program evaluation so relative weights will soon be established to represent the differing importances.

These criteria have become valuable in guiding individuals who develop proposals for submission to WRMP and in the operational subcommittee as they develop programs and prepare proposals. Upon completion of program development, a planning staff representative employs the criteria to

FIGURE 8

COMPONENTS OF A SYSTEM

1. Function
2. Inputs
3. Facilities and equipment
4. Human agents
5. Sequence
6. Environment
7. Output

discover weaknesses that can be corrected before submission of a proposal for approval. The criteria are again used as a guide to planning committee approval of the program.

In order to further assist the developers in moving from the program concepts to a formal proposal the criteria have been modified to form a set of guidelines for proposal development (see app. 2). Whereas the criteria's primary value is in evaluation, the guidelines are designed to assist in preparation. They will be used in preparing a written document that clearly describes the program and simplifies evaluation by explicitly answering the questions contained in the criteria.

Once a proposal has been developed, it is subjected to a review process designed to assure effective use of resources, appropriate project scope, and maximum benefit to the public (see fig. 9). This requires three types of review: (1) a review of the medical methodology to assure that the

FIGURE 9

REVIEW PROCESS OF THE WISCONSIN REGIONAL MEDICAL PROGRAM

<i>Review Stage</i>	<i>Reviewing Body</i>
Medical Methodology	Study Groups
Study Design	Planning Staff
Total Program	Planning Committee
Final Approval	Advisory Committee

project has medical merit, that the methodology being used is good medical practice and that the individual involved is qualified to carry out the project, (2) a review of study design to assure sufficient planning has gone into the budget, evaluation methods, and resource allocation, and (3) planning review to assure that the project fits within the WRMP comprehensive program.

No single body can adequately conduct all three reviews. The first, requiring deep medical understanding in the project area, is completed by the strategic level study groups. Although one study group has review responsibility the other three are consulted to assure that there is no unnoticed overlap with their programs. The second review requiring a depth of knowledge in statistical and scientific methods is completed by the planning staff. The third review, requiring broad knowledge of the total regional medical program, is completed by the planning committee.

Changes resulting from these three

reviews are completed before submission to the advisory committee. By that time the proposal should be in a condition that would minimize the need for additional changes before submission to Washington.

Empirical information is frequently needed in proposal development. A Measurement and Data Collection Subcommittee of the Planning Committee has been activated under the chairmanship of an industrial engineer to provide WRMP with information necessary to optimally allocate resources to planning, implementing, and evaluating programs. Having no desire to duplicate the data collection activities of others, a data source book is being developed that inventories all data collection programs in the region, describes the scope and evaluates their quality (fig. 8). When data is needed, this inventory will tell if it is being collected, whether it covers the area of interest and how reliable it is. When a void is found, new data collection activities can be started either through existing sources or through the WRMP itself.

Planning, while having come a long way, is viewed as a continuing process in WRMP. Much still needs to be done in establishing mechanisms for review of ongoing programs, evaluation of the total WRMP activity and for optimally allocating resources to our program. The role of WRMP in medical education and in working with other existing planning and operating agencies has not been clearly defined. The relation of comprehen-

sive health planning to WRMP is not yet determined. These and other new problems and the continual improvement of our existing program and processes make planning an essential WRMP component for years to come.

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APPENDIX 1

CRITERIA FOR PROJECT EVALUATION

I. Feasibility.

A. NIH restrictions.

1. Safety of human subjects must be considered.
2. The project must be concerned with heart disease, cancer, stroke, or related diseases.
3. No new construction, only remodeling.
4. No duplication of payments by RMP and by patients.

B. WRMP restrictions.

1. Degree to which the project fits within the comprehensive plan as developed by the Wisconsin Regional Medical Program.

II. Scope.

A. Provision for regional cooperation.

1. Amount of cooperation between similar institutions and/or agencies (such as between medical schools or among hospitals).
 - a. At the beginning of the project.
 - b. By the end of the funding period.

c. Potential for continued cooperation after funding ceases.

2. Amount of cooperation between dissimilar institutions and/or agencies (such as between a medical school and hospitals in the region).

a. At the beginning of the project.

b. By the end of the funding period.

c. Potential for continued cooperation after funding ceases.

3. Possibility of cooperation between regions.

a. At the beginning of the project.

b. By the end of the funding period.

c. Potential for continued cooperation after funding ceases.

4. Potential for expanding cooperation after the pilot or demonstration is complete.

B. Population and geographic areas reached.

1. Percent total population reached.

a. At the start of the project.

b. Upon completion of the project.

c. On a continuing basis after the project is completed.

2. Percent target population reached.

a. At the start of the project.

b. Upon completion of the project.

c. On a continuing basis after the project is completed.

3. Degree to which geographic needs are considered.

III. Methodology

A. Appropriateness of project design.

1. Procedure.

a. How will the project get started?

b. What are the steps in the project?

c. How long will each take?

d. What data will be collected?

e. How will data be collected?

f. What limitations are there to the project?

g. How will personnel be used?

2. Analysis and reports.

a. What reports will be written?

b. What parts of the program do they cover?

c. When will the reports be written?

3. Bibliography.

a. What major reports are used as background?

b. What literature references describe the state of the art?

B. Appropriateness of evaluation techniques.

1. What measures of effectiveness will be used?

2. How will the measures of effectiveness be used?

C. Appropriateness of medical methodology (to be evaluated by the study group).

D. Chance of accomplishing the objectives of the project.

IV. Cost

A. What is the cost of the project?

B. Potential for decreasing the cost of the project.

1. By utilizing the resources of another project.

a. Facility resources.

b. Equipment resources.

c. Manpower resources.

d. Administrative resources.

e. Money resources.

f. Information resources.

2. By a different allocation of resources.

a. Facility resources.

b. Equipment resources.

c. Manpower resources.

d. Administrative resources.

e. Money resources.

f. Information resources.

C. Likelihood of continued financial support from other source (possibility of funding from other sources).

1. What is the possibility of further funding from other sources?

2. What percent of the total budget might be funded by other sources?

V. Benefit

A. What impact will the project have on the health of the region?

1. Mortality.

2. Incidence.

3. Prevalence.

4. Duration.

5. Quality of whole life.

B. Potential for increasing benefit of the project.

1. By utilizing the resources of another project.

a. Facility resources.

b. Equipment resources.

c. Manpower resources.

d. Administrative resources.

e. Money resources.

f. Information resources.

2. By a different allocation of resources.

a. Facility resources.

b. Equipment resources.

c. Manpower resources.

d. Administrative resources.

e. Money resources.

f. Information resources.

C. The degree to which the project influences the confidence that the NIH and/or the region has in the WRMP.

D. Ancillary benefit.

1. The degree to which the project broadens the capability of subregional groups.

2. The degree to which the proposal strengthens other activities in the region.

3. Other.

E. Time lag before benefits of the project reach the population.

F. Need for the project.

VI. Capability of manpower.

A. Capability of proposer.

1. Technical capability.

2. Administrative capability.

B. Degree to which the capability of manpower requested matches capability needs.

1. Degree to which the capability is sufficient to reach the objectives.

2. Degree to which the capability exceeds the needs.

APPENDIX 2

WRMP GRANT REQUEST— SUGGESTED FORMAT

I. Introduction

A. Problem definition. What diseases are covered? What portion of the population is influenced by the disease? What is the target population of the project? What portion of this population will be influenced by the project? How will this influence incidence of the disease, duration, mortality, prevalence, and quality of whole life?

B. What advances in medical knowledge and what techniques will be brought to bear on this problem? How are these techniques involved in prevention, diagnosis, operative and nonoperative treatment, and posttreatment health care? What are the major limitations to this study? For instance, if certain components that related to the project are not being pursued by the project, what factors in terms of time, knowledge, or state of the art require you to do this additional effort?

C. What ongoing activities are related to your project?

II. Procedure

A. Means of achieving program's goals and objectives. What resources are being used to accomplish your objectives? For instance, what equipment, manpower, and facilities are being used? What type of information data collection program is being conducted? How is the program being funded, and what is the overall organizational process being used? What hypotheses, if any, are being tested and what questions are posed by this study? How do these questions or hypotheses relate to each other? If they have been tested before, please give appropriate references.

B. Project's potential. What is the potential of the project to broaden the capability of our subregional planning group? What is the potential to strengthen the activities of other programs in our region?

C. Project timetable. What is the time lag before the benefits of the project reach the population? What is the time phasing of project's components? That is, when will the following components of the project become operational? (1) Installation of equipment, (2) initiation of the post-graduate educational program, (3) completion of manpower training programs, (4) completion of an information system, and (5) completion of reports.

D. What resources within the participating institution will be used by the project?

E. What personnel will be required by this study? What will be their capabilities and the functions they will perform?

F. How will the safety of the human subjects involved in this program be preserved?

III. Cooperative Efforts

A. What provisions have been made for cooperation between institutions or agencies such as referral centers or primary contact centers? Describe the area of influence of the participating institutions requesting funds in terms of (1) geographic area covered, (2) population covered, (3) number of institutions where cooperating is feasible. What present working relationship will this project draw on and how will this project strengthen the cooperative activities in our region? What is the timetable for adding additional cooperating institutions? How will new institutions can be encouraged to cooperate with funded institutions as result of the proposal? If the need of various sections of the region are different from each other, describe how this is so.

B. What is the potential for cooperation between regions? What current working relationships exist between the regions and how will this project improve these cooperative activities?

IV. Program Evaluation

A. What measures of effectiveness will be employed and how will they be used?

B. What data is going to be collected

by the project and how will this data be used in the project? What methods will be used for the data collection and what analytical and statistical techniques will be used to test the project's goals? Describe the timetable for evaluation of the project. Be as specific as possible.

V. Project Cost

A. What are the fixed and variable project costs? How will the budget be used? Justify the expenditures for any equipment that is included.

B. Which budgetary items will be funded by other sources? What is the timetable for transferring financial support of this project from regional medical program to some other funding agency?

VI. How will the project, if it is not already, be incorporated into an educational or service program in the future?

VII. What questions are likely to remain unanswered at the end of this project and what steps will be taken to answer them? What future funding requests to WRMP are anticipated?

VIII. Bibliography

What literature describes the state of the art in the area of investigation? What references prompt or play a significant role in this topic?

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DEVELOPMENT OF A REGIONAL MEDICAL PROGRAM DATA SOURCE BOOK

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Research Associate
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Medical Program

Six months ago, when Western Pennsylvania Regional Medical Program planning was in its infancy, the staff was faced with three major problems. First, we knew little or nothing about the available health services, manpower, and facilities in the region with respect to their ability to provide patient care for heart disease, cancer, and stroke. Second, we recognized that personnel associated with these health resources knew little or nothing about the regional medical program, especially as to how RMP could be of assistance to them. Third, we felt a sense of urgency

Grateful acknowledgment is made of the contributions of Kenneth D. Rogers, M.D., M.P.H., Professor and Chairman, Department of Preventive and Social Medicine, University of Pittsburgh School of Medicine, to the data source book and to this paper.

stemming from our own advisory committee, the local community, and from Bethesda, to provide some demonstration that the program in western Pennsylvania was operable and active.

The fundamental need, from a planning point of view, appeared to be information about the dimensions of the heart disease, cancer, and stroke problem in western Pennsylvania and about the health services, facilities, and manpower available for the prevention and care of these diseases. In June, July, and August of 1967, the staff of the regional medical program undertook the collection of such data. We found that a great deal of pertinent information was available in published form. Existing source material proved useful in obtaining relatively current and accurate information concerning social, economic, and demographic characteristics of the region, vital statistics, mortality, hospital and nursing home capacity and utilization, and availability of certain types of manpower, such as physicians. Limited information was available concerning disease-specific morbidity, availability of nursing and other health care personnel, and services provided by rehabilitation centers, tumor registries, and ambulance services. For these latter categories, the staff accepted the best available sources.

Other categories of information, i.e., information concerning existing cooperative arrangements among health institutions, were not available

in published form and for these, the staff devised its own data-gathering techniques. The first of these was a questionnaire concerned with the capacity of hospitals in the region to provide patient care services for heart disease, cancer, and stroke. A personal interview technique was used to complete these inquiries. Members of the staff visited each of the 96 hospitals in the region to obtain information about hospital facilities and services for the three disease categories, patterns of hospital cooperation, extent and kind of continuing medical educational programs conducted by hospitals, and interest in participating in RMP activities.

A second questionnaire was developed and mailed to the 201 nursing homes in the western Pennsylvania region. This questionnaire asked specifically about the number of heart disease, cancer, and stroke patients which were seen in these nursing homes, length of stay, facilities available to patients, and cooperative arrangements involving nursing homes, including referral patterns to hospitals and rehabilitation centers. There was a 45-percent response to this questionnaire which, though incomplete, did indicate significant areas of need and provided information for further studies.

The feasibility and utility of developing this extremely simple type of data source book under RMP has been demonstrated to our satisfaction. It made available, in a short period of time and in one document,

a variety of descriptive information concerning the health resources for heart disease, cancer, and stroke in western Pennsylvania. This resource has been useful to the staff and to the advisory committee in our efforts to establish broad priorities among health needs and identify service gaps in this region. For example, this study demonstrated that two of the 28 counties in our region have no hospital, no nursing home, no organized health services, and an average physician age of 65 years. The data source book also showed a wide gap in services throughout the region in the area of stroke rehabilitation. WP/RMP is presently taking steps to meet these needs.

As important as the actual information collected, however, was the opportunity the study provided for staff education. The simple exercise of locating hospitals and nursing homes on maps and calculating tables of physician specialties gave the staff a working knowledge of the region's resources. Staff visits to the region's 96 hospitals gave tangible dimensions to the health problems and needs perceived at the level of the local institution.

A further benefit of the data collection and surveys was the interest in regional medical program which was stimulated in health agencies, hospitals, and nursing homes. The fact that each health care institution was contacted by the program last summer is now paying dividends in terms

of awareness of the program and understanding of what its potential is for assisting these resources to improve their own capacity for delivering high-quality patient care.

The experience of the western Pennsylvania program in developing a data source book has led to several conclusions which may be helpful to other RMP's contemplating this kind of activity.

First, good information on health resources for heart disease, cancer, and stroke already is available if sufficient imagination is applied in locating the sources, in selecting the relevant material, in editing and collating it, and in interpreting it in terms of regional medical program activities. Programs may find that utilization of existing resources can give staff time to develop information of unique applicability to regional medical program activities and which therefore is generally not otherwise available, i.e., descriptions of existing cooperative arrangements among health institutions, or activities of health agencies with respect to heart disease, cancer, and stroke.

Second, we have found that information which is frequently not considered important in other types of health surveys does become important in understanding the delivery of health services on a regionwide basis. For example, in attempting to determine the feasibility of holding continuing medical education programs in certain areas of the region, it becomes important to understand the

transportation system—the length of time, for example, it would take a physician to drive from his office or hospital to the institution providing the educational program. Improving patient services for RMP's target diseases is probably more important in communities with an older median age—and presumably a higher morbidity from these diseases—than in younger communities; but it is first necessary to locate those communities where older age groups predominate. These and similar types of problems will increasingly bring RMP research staff into contact with persons doing other types of regional planning in the fields such as land use, transportation, and social and economic development.

Third, this experience has made us more critical and selective about the information we seek and collect. Whereas initially we were satisfied to talk in terms of 3.8 nursing home beds per 100,000 population in our region, we have now come to recognize the need for statistics such as these to be more specific if they are to be of value. For example, what kinds of nursing home beds do these represent? What quality of care is provided? What facilities are available to patients occupying these beds? What is or should be the definition of a nursing home under RMP? In short, we find that numbers themselves are not enough for regional medical planning purposes. Interpretation of data in terms of patient care effectiveness is essential if it is to have

meaning under regional medical program planning.

Finally, we found that a regional health resource study served three purposes: First, it provided valuable information; second, it educated and involved both staff and community at large in regional medical programing; and third, it gave visibility to the program. The second and third purposes—byproducts of the health resource survey itself—have been fully as beneficial to RMP activities as the data obtained.

APPENDIX 1

SUMMARY: TABLE OF CONTENTS 1967 DATA SOURCE BOOK

Western Pennsylvania Regional Medical Program

I. *Introduction*: Description of the national environment within which health care planning and research is being conducted in the United States today; description of present Federal programs which encourage efforts in this area; history of the regional medical program in western Pennsylvania.

II. *Characteristics of the Western Pennsylvania Region*: Geographic, demographic, social, and economic characteristics; characteristics of morbidity and mortality for heart disease, cancer, and stroke.

III. *Health Facilities in Western Pennsylvania*: Hospitals, rehabilitation centers and agencies, nursing and convalescent homes. Number, type, and location; facilities and services provided for heart disease, cancer, and stroke; programs of continuing medical or other professional education provided; existing cooperative arrangements including patient referral patterns; availability of trained manpower.

IV. *Health Manpower in Western Pennsylvania*: Physicians (M.D.'s and

D.O.'s); nursing personnel (R.N.'s, L.P.N.'s, nursing aides); paramedical personnel (radiology, laboratory, and rehabilitation services). Number and location; specialty, certification, and/or registration.

V. *Other Health Resources*: Tumor registries; ambulance services; educational resources (academic and professional, including hospitals with approved internships and residencies); health data sources (health data collection agencies for the western Pennsylvania area); ongoing research programs in heart disease, cancer, and stroke. Activities of voluntary agencies and professional societies in areas relevant to RMP activities.

VI. *Overview*: Summary and evaluation of information with special reference to designation of priority health needs in the region.

APPENDIX 2

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CLINICAL DATA COLLECTION WITH A PURPOSE

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The development and implementation of better systems for providing patient care is the goal of the Intermountain Regional Medical Program. In this paper we will describe an intensive care facility for patients with acute myocardial infarction which utilizes a computer as a tool for data collection, information dissemination and instruction of personnel working in such units (fig. 1).

In an intensive care ward, as in any other patient care situation, data must be collected concerning the patient care activities. This data must be organized in some way for presentation in a teaching situation since it is unrealistic to expect each person to acquire enough data from his own experience alone to justify generalizations upon which he must make future decisions about the care of other patients. In the system developed in

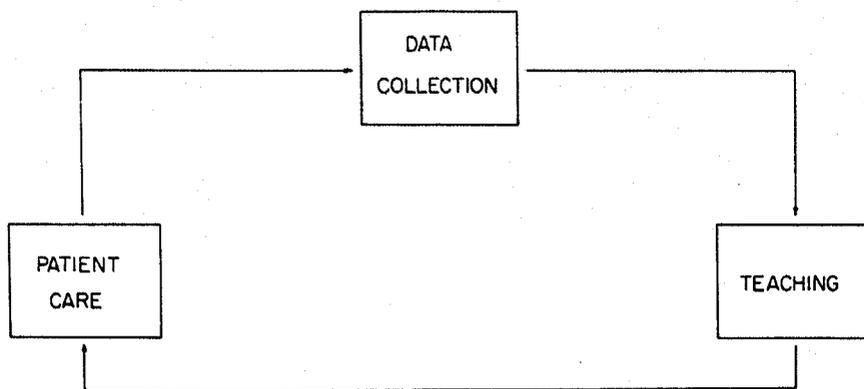


FIGURE 1

Salt Lake City it is possible not only for each participant to make use of the cumulative experience of all the personnel at all the hospitals, but also through a simulation technique to give each nurse or doctor many times the experience he or she would ordinarily acquire working in his own unit. We shall now discuss data collection, teaching and patient care in that sequence.

The present manual methods of medical data handling have been worked out by trial and error over a long period of time and have gained the confidence of most doctors and nurses. But is it unrealistic to expect that any new data collection system will be accepted unless it provides one or both of the following: (1) An easier means of entry of data than is offered by the present method, or (2) some feedback of information which is directly useful to the people entering the data. Figure 2 shows a

device designed by the phone company to automatically dial a phone number when the operator drops into a slot a card with the coded number punched in it. A dictionary of codes has been devised which allows entering clinical information such as drug orders, nurses notes and other clinical information into the patient's computer record by dropping the appropriate prepunched card into the box. The decoded information is then written out by the computer on the face of the oscilloscope for confirmation by the data collector before it becomes part of the patient's record.

In the case of physiological data, read-out from pressure transducers and EKG leads is made automatically at intervals established by the computer and the nurse is only notified when a significant change in the patient status occurs.

The second type of incentive that the system can provide the data col-

lector is the feedback of information from the system. This can be accomplished as shown in figure 3 by presenting the data in a reduced form. The input in this case was a central arterial pressure wave and displayed back is a list of 10 variables averaged over 16 heart beats including stroke volume, cardiac output, peripheral resistance, which could not be derived directly by the observer and which gives significant insight into the physiological state of the patient. Here we see one column of values representing the most current measurements and a second column used

for reference. These are called the baseline values on that particular patient. The computer only saves information which represents a significant change from this baseline.

Figure 4 shows another form in which the computer can present data back to the personnel responsible for patient care. This is a plot of the time-course of two variables: mean arterial pressure and resistance, allowing the observer to quickly detect the presence of trends when they were established. However, in spite of this editing and selecting process, a difficult job still remains for the nurse or



FIGURE 2

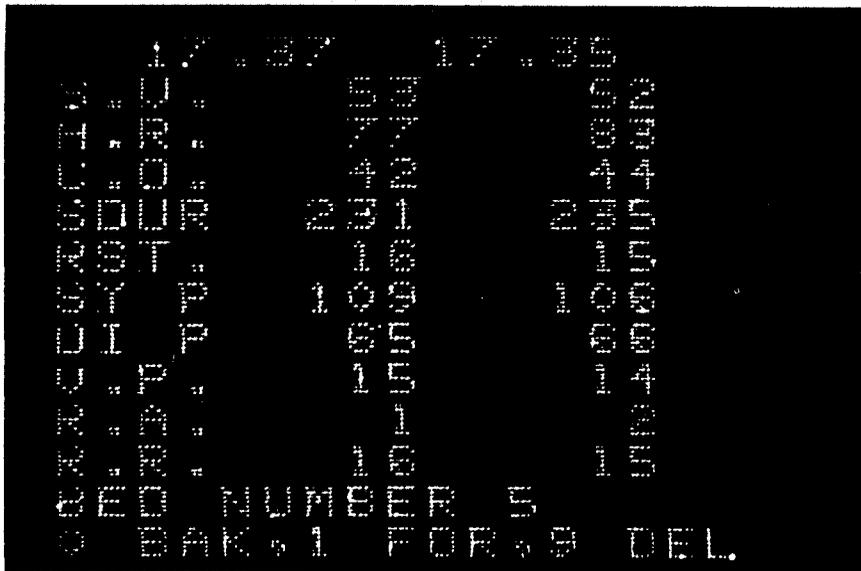


FIGURE 3

doctor in terms of the intellectual effort involved in making an interpretation of the physiological data in terms of "what should be done with this patient now." To properly assist in this process, the computer should relay back not just the physiological findings but an interpretation of the findings in terms of their probable clinical significance.

Figure 5 shows a message which appears on the scope face of the remote computer unit at the nurses' station when the nurse presses a red or yellow light turned on to alert her that a change has occurred in one of her patients. First the program displays the name of the variable fur-

thest out of tolerance, its last value and its base value. Then the nurse, by pressing a one to choose the explain option, enters clinical information which she thinks is responsible for the deviation in the physiologic state of the patient. This data will then become the base upon which the computer on future cases will make clinical interpretations.

The nature of the data collected and its format are determined by the purpose for which it is to be used; that is, by the type of questions that are to be answered from the data. Figure 6 shows an example of a data collection scheme for a coronary care unit. This is a three-dimensional

matrix called a transition matrix. The present state of a patient is represented by a particular row as indicated by the label on the vertical axis. The treatment or lack of treatment is indicated by a column as labeled along the abscissa. Corresponding to each row and column, there is an array of numbers in the Z axis which indicate the probability of a patient receiving that treatment when he has that arrhythmia going to any other state or arrhythmia. This matrix requires a particular data collection scheme from which this kind of data can be derived. Next we

will consider the use of such a transition matrix as a teaching tool.

Any good teaching system should provide not only information but also experience in using this information as a basis for making decisions as well as some built-in evaluation of student performance and effectiveness of the teaching method. A computer-based simulation of a patient with myocardial infarction has been developed which satisfies these criteria.

Figure 7 shows a nurse sitting in front of a remote computer console participating in a training session. The face of the oscilloscope is used to display the electrocardiogram just as it

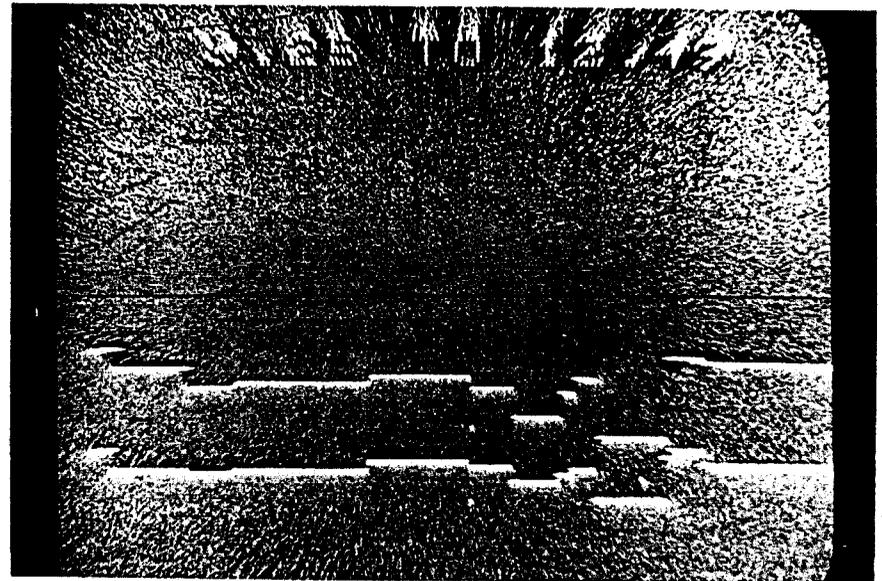


FIGURE 4

is displayed at the coronary care unit. Below the electrocardiogram on the scope options and other information are presented and the nurse or doctor may select options using a numerical keyboard below the scope. Figure 8 shows a closeup of the scope display. The nurse may choose to give a medication, perform a procedure or ask for information. For instance, if she asks for information she may check the electrodes, check the electrolytes, check the patient's blood pressure or pacemaker.

A running score is presented to the participant. This is based on the adequacy of the decision made at each decision point. If the treatment

chosen is the one most likely to return the patient to a normal sinus rhythm and normal blood pressure, a number is added to the score which is dependent on how good this decision was compared to other possible choices. A negative number is added if a bad decision is made. Thus, the student has a running evaluation of his performance which may be somewhat independent of how well the patient is doing since the patient's response to a given treatment is dependent not only on the probability matrix and the decision made but also upon the random choice based on these probabilities.

Figure 9 shows the medication op-

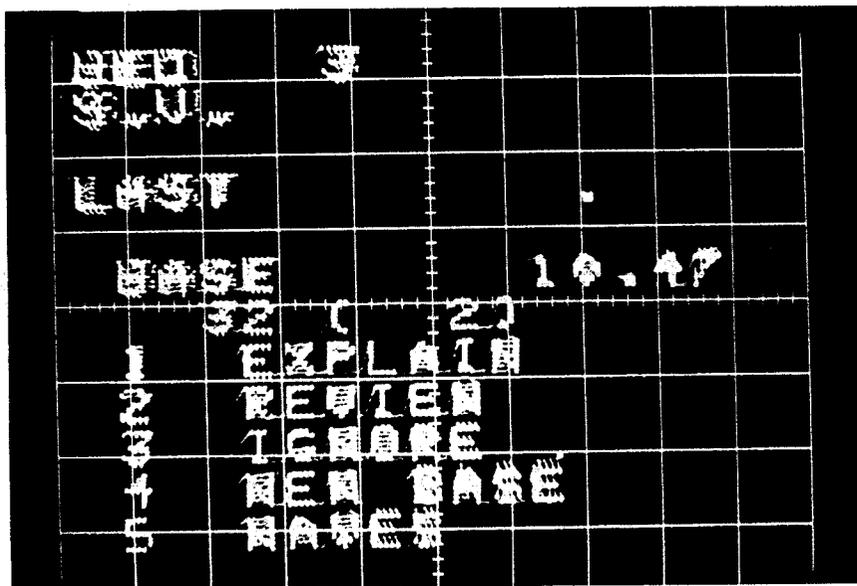


FIGURE 5

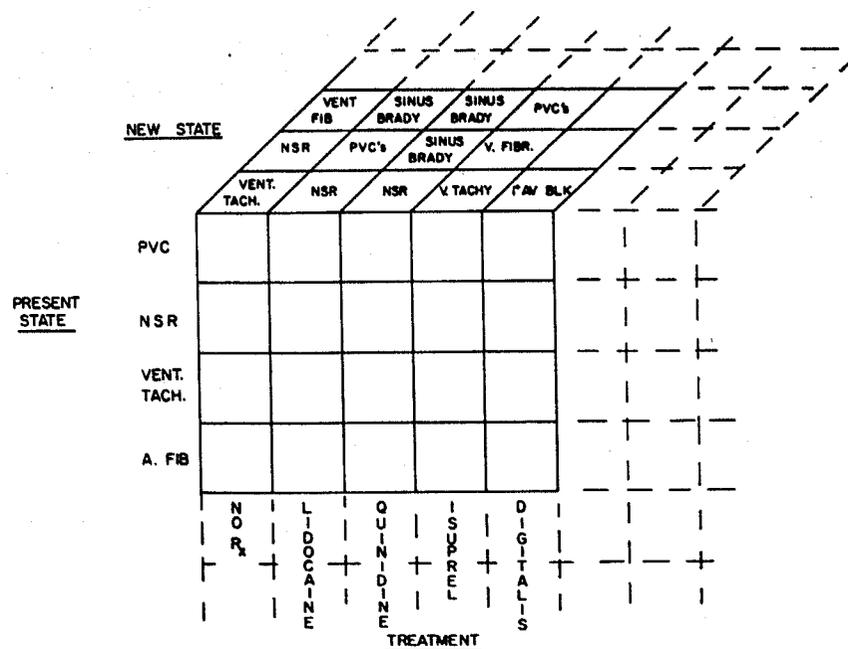


FIGURE 6

tion. This list of medications can be expanded or modified based on current practice which, in turn, determines the availability of data to fill in the transition matrix. Thus, the system should be self-improving in the sense that it is using the most current real experience of all participants to update the simulation which, in turn, is then available for all participants to use in the teaching mode.

Based on the assumption that the limiting factor in the quality of patient care in a coronary care unit is the quality of the decisionmaking process, care should be improved by

giving personnel practice in making these decisions based upon realistic data. The success of the system just described rests largely on its ability to represent reality both in terms of variety of the EKG arrhythmia patterns presented, the probabilistic nature of the transitions made and the fact that these transitions are based on real observations. In any given clinical situation the therapeutic decision is based on the assumption that this case will behave like the average case in the same situation. With this simulator, however, the student is made aware that there are other pos-



FIGURE 7

sible responses and is allowed to gain the experience in making these vital decisions without risking someone's life until he has optimized his decisionmaking capabilities.

In conclusion, it should be mentioned, of course, that as the simulation becomes a more reliable reflection

of reality it can become (just as the automatic pilot) an on-line tool for informing the nurse or doctor as to what action is appropriate in a given situation. This will occur when machines become cheaper and more effective than people in carrying out this decisionmaking process.

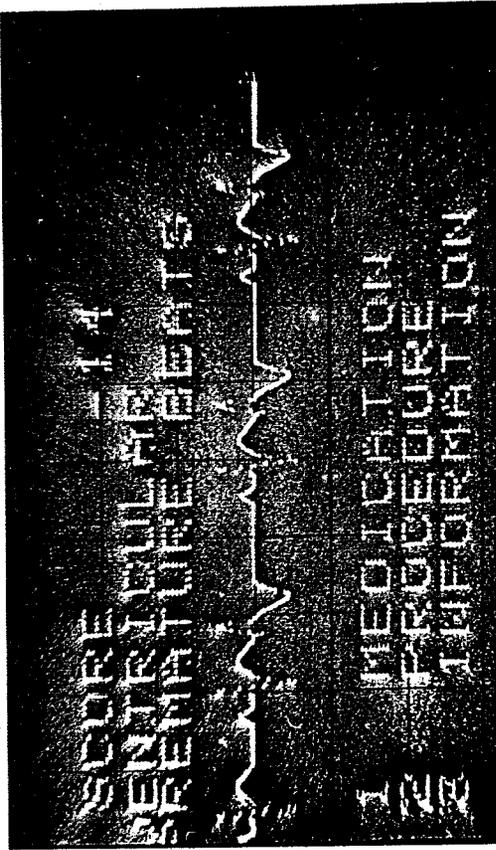


FIGURE 8

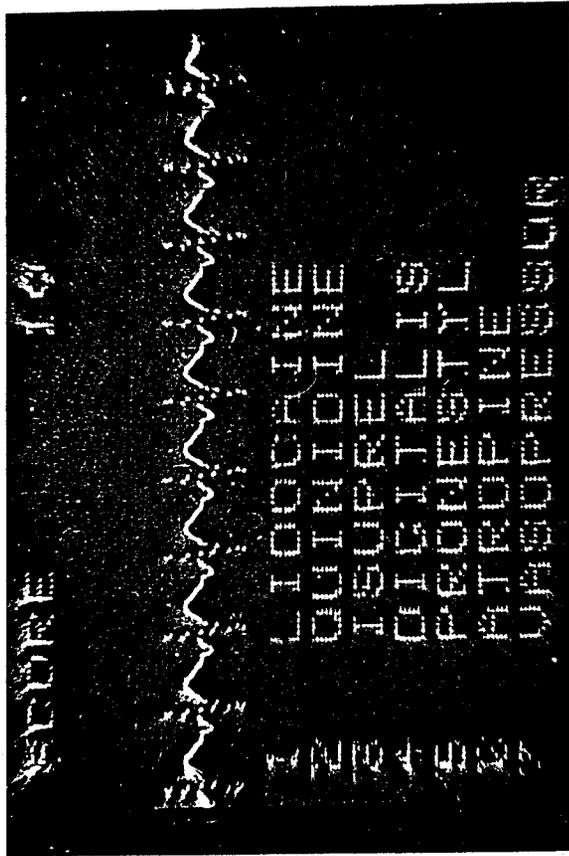


FIGURE 9

THE DESIGN AND DISSEMINATION OF DATA COLLECTING INSTRUMENTS

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Associate Director
Mountain States Regional
Medical Program

When the Mountain States Regional Medical Program considered disseminating a questionnaire, the illusive \$64 question immediately confronted us: How to design and administer a data-gathering instrument that would have validity, obtain the information we were seeking and meet objectives of the project. To compound our problem, we recognized such a document must also have the capability of being administered with a relative amount of ease within a time limit and within a prescribed budget.

This may appear to you as a herculean task—it was. Our area encompasses four States, roughly 440,000 square miles, has 2,100 physicians and approximately 15,000 other health professionals. Formidable as the task may seem to survey more than 17,000 health professionals in this vast geo-

graphic area, our staff would not consider a second-rate job—they would only try harder.

Goals are essential to the success of any project because no one gets what he wants until he knows what he wants, and so I would like to backtrack very briefly to review the goals of the Mountain States Regional Medical Program planning study. The primary objective as stated in the application is, To obtain information from the grass-roots level from all health professionals as to their needs and desires relative to caring for patients with heart disease, cancer, stroke, and related diseases. As a bonus to our project we decided that the consumer, too, would be given an opportunity to express his feelings about the quality of available medical service. Out of the study would come a comprehensive statement of the facilities, equipment, continuing education, and new personnel needed by physicians and other health professionals to improve their capacity to cope with these diseases and give their patients an opportunity for survival equal to that of persons living near large medical centers. Ultimately this information would provide the basis for the development of a regional medical program.

To get the survey off the launching pad, a joint meeting of State directors and research staffs was held in early February of last year. Ground rules and policies were adopted preparatory to the development of a suitable data-gathering mechanism. It was

determined that questionnaires would be prepared to be administered to physicians, dentists, registered nurses, administrators of hospitals and nursing homes, to the major allied health professionals and to consumers. Consultative services for technical assistance in the design and construction of the questionnaires were provided by J. F. Whiting formerly with the AAMC and AMA, Alfred P. Parsell, James E. Wiechers, and Robert Mendenhall from the System Development Corp. of Santa Monica, and Leo Reeder, UCLA School of Public Health. These consultants served as a sort of think-tank for overall design and planning, outlining a methodological approach and the step-by-step procedures. A chart depicting the various phases of the project was prepared and time limits established. Interestingly enough, the deadline dates set early in the project were strictly adhered to—in fact, to date we are just slightly ahead of schedule. I should also like to mention, that one or more specialized consultants were present at each meeting to augment the research staff and to furnish guidance during the entire development process.

Five basic guidelines were established to assist personnel in the development of the questionnaires:

- (1) Questions must be relevant to title IX (heart disease, cancer, and stroke).
- (2) Questions must consider the basic objectives of the program as outlined in the project.

(3) Questions must be as few in number as possible, but as many as required to obtain the information.

(4) Questions should request only information that is not available by other means.

(5) Questions, to be universally applied, must be prepared so that persons at the lowest level of education can understand them.

The major areas of information to be obtained were also defined: (1) Identification, i.e., basic information about the respondent, (2) behavioral, i.e., what is the respondent doing in practice now as it relates to heart disease, cancer, and stroke, (3) exposures to and expressed needs for education facilities and resources, and (4) attitudes toward health care.

Throughout the development process, the staff gave consideration to content, format, and phraseology of the various questions so that the elicited information would be current, practical, reliable, and factual. Moreover, a close working relationship was maintained with knowledgeable individuals from each of the professional groups, and their suggestions incorporated. Pretesting was done within each discipline to improve the reliability of the questionnaire.

In developing the consumer questionnaire we recognized that we were dealing with an entirely different group of persons from the professionals. Here the emphasis was placed on opinions and attitudes, rather than factual information, since the manner in which the consumer

perceives his health problems and his attitudes concerning heart disease, cancer, and stroke are vital to an understanding of public health needs. This questionnaire was also prepared to be understood by persons with the lowest level of education and yet obtain information relevant to the basic objective. In all the questionnaires, professional and consumer, space was provided for individual reaction, to permit respondents to reply in their own words.

We have considered our questionnaires as direction finders, uncovering needs for planning purposes. We believe that they will provide baseline data on existing resources and programs, give as accurate a picture as possible of what the needs are in the four-State area, and subsequently have a far-reaching effect for both intra-and inter-regional planning of regional medical programs. We recognized the possibility of continuous overlap of the two grant programs. We also recognized that planning is considered to be continuous; that as you plan, operational programs will emerge; and that both planning and operational programs will change as education needs and consumer needs change.

I should like to discuss briefly the five-phase follow through:

Phase I included designing and developing the first set of instruments.

Phase II included revisions of the instrument and a pretest, utilizing select groups or representatives of the various disciplines, but not nec-

essarily a statistical sample. Our objective was to see whether the questions were understood, relevant, answerable and practical.

Phase III included analysis, evaluations, and further revisions, and a pilot test, using State advisory groups as the population of concern. Our objective in this phase was to determine whether the instruments were feasible and capable of doing the job.

Phase IV included preparation and printing of the final document and the actual testing of the populations of concern. In addition to being color coded, the questionnaires were copyrighted as a precautionary measure to safeguard their full use by the originators. Sampling of physicians, dentists, administrators, radiologic and medical technologists, and physical therapists was 100 percent, i.e. questionnaires were mailed to all known professionals in these categories. A 10 percent random sampling was selected from the registered nurse and licensed practical nurse groups. At the same time a very limited random sample of consumers was surveyed (about 200 from each State). A larger sample is under consideration. In all, about 6,000 questionnaires went out in three mailings. A staggered freeze-date for returns of the various questionnaires was established, with November 3, 1967, as the final freeze date. Any returns after this date are not to be included in the study. A return envelope, postage paid, was provided. Followup for those not returning the questionnaire,

was by postal card or telephone reminder, at 2-week intervals.

Explicit details for dissemination of the questionnaire are not possible here, but I should like to mention that a data collection procedure manual was developed for use by personnel, with each procedure outlined in detail so that the sampling technique was identical in each of the four States.

Throughout the four phases, the data-gathering instrument was under constant revision and refinement, with review by state directors and/or State advisory committees. The various disciplines were also involved at all times in pretesting among their membership and in submitting questions to be included in the questionnaire.

It may be of interest to you to know that it has taken six major and four minor revisions, and 7 months to produce these documents in this form. It has also required 2 months for dissemination and return. Printing, envelope, and mailing costs were about \$4,200. We anticipate that keypunching and verifying will amount to an additional \$1,000.

We are now in Phase V. The returns from the questionnaire are being keypunched for computerization and analysis. This phase we consider as our bridge to action. Depth probes may be indicated where information is not complete.

To say we have not encountered difficulties just might lead you down a primrose path. We have encoun-

tered difficulties, but they have been surmountable. If problems arose, alternative approaches were always considered and were implemented when necessary. The basic guidelines and procedures, however, that were initially established were adhered to and the overall design of the survey has not been altered. Our most current problem is that of processing returns that are incomplete. Some may require in-depth probes or personal interviews, to which I referred earlier.

In summary, I should like to say that at all times the State directors of our four States were the final determinants in the decisionmaking process, with specialized consultants providing the steering mechanism.

acceptability in the field of rehabilitation of the cancer patient. Meetings of the social workers in the community hospitals have established firm lines of communication which are being utilized on a day to day basis.

A form has been developed by Mrs. Evelyn Cooper, chief of our social service department, and Dr. Herbert Dietz of the Institute of Rehabilitative Medicine (app. 3). This form has been of great help to the social workers and representatives of community services including those from vocational rehabilitation services in making decisions related to post therapy cancer patients. It has been fully endorsed by the American Cancer Society, the American College of Surgeons, the Rehabilitation Services Administration, and others. It is being distributed at the local and national level. It is being used successfully in our everyday work with cancer patients here at Memorial Hospital.

Development and Distribution of Procedural Manuals and Therapeutic Methods in Cancer.—Although many such manuals have been prepared in the past, the reproduction and distribution of them has been inadequate. We are becoming increasingly involved in this effort. Our communications between the professional staffs of the community hospitals have been greatly expanded in the past 7 months.

There have been some pretty interesting activities between October 1965 and June of 1967. After becoming

conversant with legislation and its interpretation as understood by representatives of the many facets of the health industry, we approached staffs of hospitals with whom we had had previous professional. Most were very skeptical about the program. Fears . . .? There were many!

(1) "Changes will occur in the health industry that will effect deleteriously physicians in practice, at medical school, in research, etc."

(2) "Community hospitals will be engulfed by huge medical centers."

(3) "Nothing will be accomplished but many dollars will be wasted."

(4) "There will be a reshuffling of the staff of nurses and other members of the health team."

(5) "The vastness of the program makes it impossible."

(6) "We cannot accept increased responsibilities since we are already overworked."

(7) "How can we be expected to give physicians more service when we have the responsibility of taking care of patients?"

(8) Many feared that their own individual inadequacies would be pinpointed thus making them "lose face with the profession."

Frequent face-to-face conversations plus reams of written data sent out on a regular basis to administrators, physicians, social workers, and nurses, quieted many of these fears. Our insistence on wanting to help them get what they wanted and needed created confidence that we were not trying to engulf them. Ef-

fective administrative lines of communication have been expanded. Without them our program would have failed.

All during these months we had problems at Memorial of motivating our already somewhat overworked medical, nursing, and social service staffs toward understanding and participating in this program. Strong lines of continued persuasive communications were brought to bear. These efforts have finally resulted in success at physician, nurse and social service levels.

Many difficulties in developing effective communications were everyday occurrences. Letters, phone calls, posters, thank you notes, more phone calls arranging for transportation, changing dates and times at the last minute were some of the means which we utilized to solve our problems. We are in the process of helping community hospitals obtain expanded secretarial help for this program. We know we could not function at Memorial without superior secretarial assistance.

In addition to the aforementioned activities, we are actively engaged in helping the staff of the Robert Packer Hospital develop a local consultation service for the community hospitals surrounding their institution. This same activity is being carried on on a formal but modest manner at the Memorial Center. The mechanism for setting up such phone consultations is difficult administratively. However, during the past

10 months this service has been expanding.

During the past 2 years we have been in constant touch with representatives of the AFL-CIO Community Services Division. We now have a close working relationship with them. It is still quite informal but we believe that these activities will be one of our most productive spheres of interest. As with every worthwhile program we are continuing to plan as we go along. There is so much to be done in providing health services for the community that the horizon is almost unlimited.

In conclusion, great ideas, innovation and worthwhile programs are helpful but a team comprised of equal partners working together backed by strong communication channels is essential for success.

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A COOPERATIVE PROJECT FOR THE CARE OF CANCER PATIENTS BY MEMORIAL HOSPITAL FOR CANCER AND ALLIED DISEASES

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New York Metropolitan Regional
Medical Program

In October 1965 the board of managers of Memorial Center requested the staff to develop a cooperative program with community hospitals based on the new regional medical program legislation as related to cancer. By June of 1967 we received funding for such a program.

The educational activities which we have developed in cooperation with 32 community hospitals in the Greater New York Metropolitan Area probably are similar to those that are being developed throughout the country (app. 1). In addition to reporting on our programs I will present some of the experiences we have had in developing and administering this modest feasibility study in the care of the cancer patient.

Since June 1, 1967, 136 educational sessions for nurses and physicians have been held under the auspices of the Memorial feasibility study. We estimate that these educational activities have involved 1,500 physicians and 1,000 nurses. This is somewhat misleading inasmuch as some of the sessions have been attended by the same physicians and nurses. It is estimated that this effort has resulted in over 500 hours of educational experience. Most of the sessions last for approximately 3 hours. All of the hospitals have not been involved although most of them, with very few exceptions have set up schedules for January, February, and March of 1968. Some have scheduled programs through August 1968. In general, the sessions are primarily devoted to demonstrations and discussions of individual patient problems.

Data has been presented from tumor registries of the individual hospitals and compared to data which has been collected at Memorial Hospital. Very few formal lectures have been presented. It is our experience that the utilization of informal discussions, many of which have been at the bedside, is a much superior way of communicating with the practicing physicians.

The nursing education program has been quite similar. These presentations have been augmented by presentations of visual materials and by the distribution of data which has been prepared by the Nursing Educa-

tion Department of Memorial Hospital.

An evaluation in depth of the impact of this program to date is empirical. However, the number of participants attending each session has been greater in every instance the second time we visited the institution. We have been very careful in presenting data which are requested by the staff of the community hospitals. Our staff has been very selective in delegating articulate and community oriented staff members to lead these discussions. To date, there have been 35 physicians and nurses from Memorial who have participated in this program.

The Regional Radiation Therapy Program.—A formal affiliation has been established with the following hospitals: New York Hospital, New York City; Northern Westchester, Mount Kisco, N.Y.; Beekman-Downtown Hospital, New York City; Nyack Hospital, Nyack, N.Y.; Horton Memorial Hospital, Middletown, N.Y.; St. Luke's Hospital, Newburgh, N.Y. (Physicists and other technical help are provided if these are not available at the community hospital.)

These agreements include consultation services as related to X-ray therapy. Close liaison has been established with the responsible attendings in charge of the radiation therapy departments at the affiliated hospitals. In the case of New York Hospital, a program has been in effect since July 1, 1967, for the treatment of all of their outpatients who need X-ray

therapy. This program is progressing. Plans are underway for joint appointments of staff members and interchange of radiology technicians for short periods of time.

In addition to this program, and in no way funded by the regional medical program, the physics and X-ray therapy departments have developed a teletype linkage to Memorial for computerized internal and external radiation treatment planning (app. 2). The hospitals using the service are billed for expenses which they incur. This program has been in effect now for several months, and seems to be a great aid to the cooperating institutions which are located throughout the United States and not limited to a geographic region.

Social Service Program.—Memorial Center shares in the national problem of the manpower shortage in the health field. This shortage has been an obstacle toward rapidly developing our social service program. Recently we have found properly trained people who are now working in this vital department. We have had a number of interhospital discussions concerning the management of individual cancer patients at the social and economic level. Workshops, seminars and demonstrations in depth have been developed. These activities will be presented in the early months of 1968. Members of the medical and social service staff have been very active on the city, State, and National level in promoting an awareness and

APPENDIX 1

LIST OF COOPERATING HOSPITALS—MEMORIAL HOSPITAL'S FEASIBILITY STUDY

<i>Hospital</i>	<i>Location</i>	<i>Administrator</i>	<i>Ownership status</i>
Beckman-Downtown Hospital.....	170 William St., New York City....	Arthur S. Beenev.....	Other nonprofit.
Brookdale Hospital.....	Linden Blvd., Brooklyn, N.Y.....	Morrell Goldberg.....	Other nonprofit.
Calvary Hospital.....	600 Macombs Rd., Bronx, N.Y.....	Sister Gemma, R.N.....	Church related.
Elizabeth General Hospital.....	923 North Jersey, Elizabeth, N.J....	George F. Billington.....	Other nonprofit.
Englewood General Hospital.....	250 Engle St., Englewood, N.J.....	Nelson R. Henson.....	Other nonprofit.
Flushing Hospital and Medical Center.	Parsons Blvd. and 46th St., Flushing, N.Y.	William F. Moore.....	Other nonprofit.
Glen Cove Community Hospital....	St. Andrews Lane, Glen Cove, Long Island.	Lawrence Dickovich.....	Other nonprofit.
Goshen Hospital.....	253 Greenwich Ave., Goshen, N.Y..	Gerald Flynn.....	Other nonprofit.
Greenwich General Hospital.....	1503 Perry Ridge Rd., Greenwich, Conn.	William J. Donnelly.....	Other nonprofit.
Highland Hospital.....	Delavan Ave., Beacon, N.Y.....	Albert G. Wnuk.....	Other nonprofit.
Horton Memorial Hospital.....	60 Prospect Ave., Middletown, N.Y.	William H. Pragnell.....	Other nonprofit.
Hospital for Special Surgery.....	535 East 70th St., New York City...	Gordon Young.....	Other nonprofit.
Interboro Hospital, New York, N.Y. ¹	Linden Blvd., Brooklyn, N.Y.....	Arnold A. Feinstein.....	Proprietary-partnership.
LeRoy Hospital, New York, N.Y. ¹ ..	40 East 61 St., New York City.....	Elliott E. Benadon.....	Voluntary nonprofit.
St. Luke's Hospital.....	Newburgh, N.Y.....	George E. Parker.....	Church related.
Mountainside Hospital.....	Bay and Highland Ave., Mountainside, N.J.	Warren G. Rainier.....	Other nonprofit.
Nassau Hospital.....	1st St., Mineola, Long Island.....	Fred K. Fish.....	Other nonprofit.
New York Hospital.....	525 East 68th St., New York City...	David Thompson, M.D.....	Other nonprofit.
Northern Westchester Hospital....	East Main St., Mount Kisco, N.Y..	Jerome Peck, Jr.....	Other nonprofit.
Nyack General Hospital.....	North Midland Ave., Nyack, N.Y..	Russell Drum.....	Other nonprofit.
New York Polyclinic.....	345 West 50th St., New York City..	Edward Peterson.....	Other nonprofit.
Robert Packer Hospital.....	South Wilbur Ave., Sayre, Pa.....	Howard Jones.....	Other nonprofit.
Phelps Memorial Hospital.....	North Tarrytown, N.Y.....		
St. Anthony Hospital.....	15-19 Maple Ave., Warwick, N.J....	Sister Marie Therese, R.N.	Church related.
St. Barnabas Hospital.....	Old Short Hill Rd., Livingston, N.J.	A. Chester Conrow.....	Other nonprofit.
St. Francis Hospital.....	160 East Main St., Port Jarvis.....	Sister M. Theresa.....	Church related.
St. Francis.....	North Rd., Poughkeepsie, N.Y.....	Sister Ann Elizabeth, R.N.....	Other nonprofit.
St. Vincent's Hospital.....	Bard Ave., Staten Island, N.Y.....	Richard Herrmann.....	Other nonprofit.
Wyckoff Heights Hospital.....	Stockholm St., Brooklyn, N.Y.....	Harold G. Koach.....	Other nonprofit.
Stamford General.....	190 West Broad St., Stamford, Conn.	Edgar Geibel.....	Other nonprofit.
Staten Island Hospital.....	101 Castleton Ave., Staten Island, N.Y.	John F. Miller.....	Other nonprofit.
Vassar Brothers Hospital.....	Reade Place, Poughkeepsie, N.Y....	Louis E. Breglia.....	Other nonprofit.

¹ (Osteopathic Institutions).

APPENDIX 2

SUMMARY OF MEDICAL PHYSICS SERVICES PERTINENT TO AFFILIATED HOSPITALS

Most of the services which medical physics can contribute to the affiliated hospitals are best carried out at Memorial where the staff and equipment are located. Some services could also be supplied at the affiliated hospitals and are indicated separately.

A. Services at Memorial Hospital

1. Teaching.—(a) Lecture and problem course. (b) 6-Weeks laboratory course.
2. Treatment planning.—(a) External radiation planning. (b) Implant dosimetry. (c) In-vivo dosimetry.
3. Radiation safety advice.
4. Equipment advice.
5. Calibration of specific dosimeters.
6. Advice on dosimetry procedures and measurements.

B. Services at affiliated hospital

1. Special lectures on specific procedures.
2. Advice on specific problems in any of the areas handled by medical physics.
3. Advice on instrumentation and installation problems.
4. Calibration of output of radiation therapy sources. This is a service which is usually provided by certified physicists on a fee basis to various hospitals. Where such a service was not available we could probably provide an annual determination of the output. Where such a service is already available, the question of whether it is appropriate for us to do this should be reviewed. This might have to be discussed with the American College of Radiology to determine whether or not they considered it ethical for our staff to calibrate other hospital equipment in competition with those who normally do this for a fee. The same consideration would apply to surveys of radiation protection.

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COOPERATIVE COMMUNITY HEALTH PROGRAM

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Northwestern Ohio Regional Medical Program

The program to be described is based on experiences obtained from the operation, since 1947, of a community program for the detection of uterine cancer. We will first comment on the evolution of the older program and then discuss its application to some of the facets of the Northwestern Ohio Regional Medical Program.

It would be ego-satisfying to say that the uterine cancer detection program was wisely preplanned, has operated as designed and has performed efficiently and smoothly through the years. Actually, it has been modified, molded, battered, and occasionally almost obliterated by many forces. These forces in general have improved the program. They have come from both medical and lay sources.

Medical influence was first exerted when the plan was submitted to the council of the county medical society for approval. As submitted, the pro-

gram proposed the use of cytologic specimens to be collected from women who would come to one of several clinical centers established for this purpose. There was vigorous discussion of, and some resistance to the plan as presented. Among other things there was insistence that the patient be examined in the physician's office rather than in central clinics or hospitals and that the collection of the specimen be accompanied by pelvic examination. Out of these council conferences also came the idea of medical society sponsored educational programs for practicing physicians on the aims, techniques, and potentials of the undertaking.

A number of other modifications resulted from subsequent discussions, but these two, practitioner participation and professional education, were among the most important in favorably influencing the course of the program.

The results of centering the examinations in the physician's office and educating the doctor about the project were not only beneficial to the program, but also helped to establish certain principles about the management of health programs in our community. First, it became evident that when such an undertaking was presented to a group of physicians, it could be intelligently discussed, modified, and improved so as to become used and useful. On the other hand, it seemed likely that if an attempt had been made to initiate the same undertaking without consultation it would have

been seriously handicapped because of features distasteful to those who would be asked to use it. This simple observation seems self evident, and yet a review of many programs of merit shows that they have failed because they were presented to the users without consultation.

Second, physician education proved to be a psychologic, as well as a practical benefit. It was carried out before any announcement of the program was made to the lay public and therefore the physician was the first to know about the undertaking and was not embarrassed by patient inquiry—or, if he was, he could only blame himself for not having participated in the educational opportunities.

Influences from lay sources were sought only after the professional groundwork was laid. The usual use was made of news media, pamphlets, talks and lectures, voluntary and public health agencies, especially the local unit of the American Cancer Society, and any other persuasive method considered effective in eliciting the participation of the female population. In the course of talks and lectures to various women's clubs and groups it was suggested to the women that they should call or visit their doctor and ask him for the test. This kind of patient pressure proved to be an effective stimulus for persuading many physicians to participate in the program and was used extensively during the developmental stages of the project.

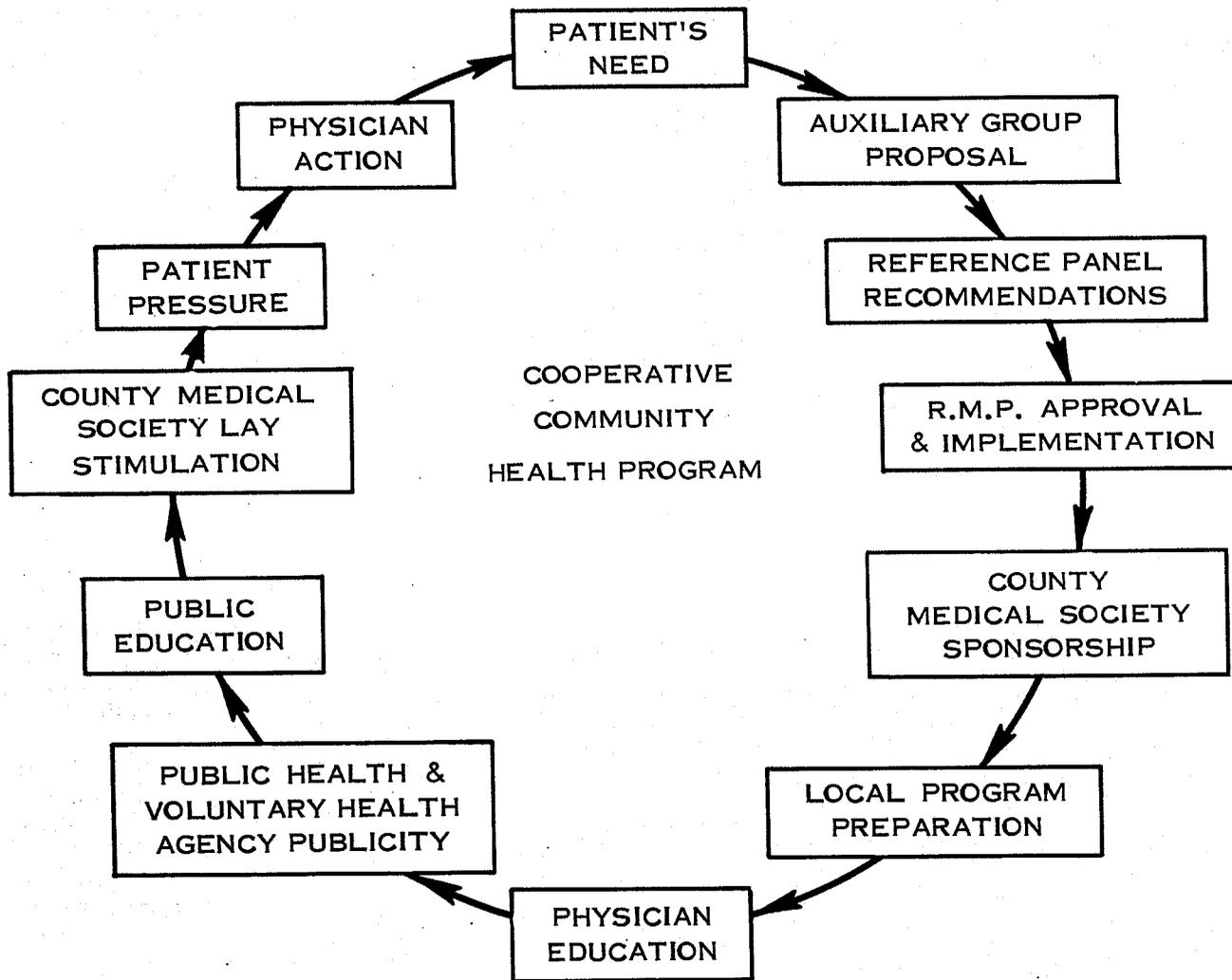
As a result of all these efforts, the

Toledo program emerged, and today operates as follows:

Women are urged to go to their own physician at least once a year. The physician takes a history, makes a pelvic examination, records his findings on a multicarbon form and prepares a vaginal pool and cervical scraping cytologic smear. He then sends the cytologic preparation together with the entire examination form to a local pathologist of his choice. The pathologist examines the smears and records his findings on the form. He then returns the top copy of the form to the physician, keeps the second copy for his files and sends the last copy, a card, to a control center operated by the county medical society. If the findings are negative, a year later the control center prepares an appointment card for the physician to send to the patient. Thus arrangements are made for each woman who enters the program to be examined at yearly intervals, or more often as deemed necessary by her physician. The program has been effective in gaining patient and physician participation and in detecting and treating carcinoma of the uterus with good results.

In summary it may be said that there are three basic elements which applied in the order named, have contributed importantly to the program's success. These are, physician consultation and participation, professional education, and patient pressure. These experiences have been incorporated into the plans for son

FIGURE 1



of the educational activities of the Northwestern Ohio Regional Medical Program.

Before entering into a detailed discussion of this specific plan, it seems appropriate to say that in our region we have been constantly concerned about professional acceptance of regional medical program proposals. With our experience that acceptance is encouraged by participation, we have attempted to design programs that will not only meet patient needs, but also permit professional contribution at the practitioner level. Such programs are likely to be straightforward and simple, as most of those in our region are initially planned to be. We make no apology for this, believing that simplicity and participation are easily united and that sophistication may be the offspring of this union.

One approach to a simple program is illustrated by the accompanying diagram. The start will be made with the health needs or deficiencies of the patient with respect to heart disease, cancer and stroke in a given community. These needs must be identified by local physicians and local ancillary health personnel and organizations. In our Northwestern Ohio plan, auxiliary groups have been set up in each of four sections of our rather small region. Members of these groups are closely associated with the health problems of their own particular locality. It is planned that they will, with regional medical program staff help, search out the health

COMMUNITY CANCER COORDINATORS

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Professor of Postgraduate Medicine
Albany Medical College
Albany Regional Medical Program

The best in medical knowledge and in clinical service directed toward the prevention, detection, and the management of cancer is not currently present throughout the Albany region. We feel that this is due to the lack of effective stimulation and coordination of educational and service aspects of cancer activity within the various subregional areas. This, we feel, is related to insufficiently interested or talented professional individuals within the various community locations.

(Slide 1) Twelve subregional areas within the total Albany region are demonstrated on the map. Those eight areas which are marked by an asterisk are locations in which interest in stimulating an effective cancer program of one type or another has been suggested in recent months. Together, these areas represent considerably more than one half of the total Albany region in terms not only of geography but, more importantly, in

terms of numbers of physicians and in population.

The expression of these interests to attain more satisfactory clinical cancer practice in these areas substantiates our feeling of a need for the development of some type of coordinated regional cancer program of which a cancer coordinator professional individual might be a part. It is proposed to establish a cancer coordinator in each of the indicated areas to help plan, initiate or interrelate all cancer activity within that geographical community.

Each coordinator will be a physician, preferably though not necessarily, board eligible or certified in a specialty. It will be important that he have good rapport with, and enjoy the confidence of, the physicians in his area. Each coordinator will be carefully selected on the basis of his potential interest and responsiveness to problems in the cancer field, and in relation to his willingness to pursue a highly structured and energetic professional oncology training experience.

Each coordinator shall be expected to hold responsibility for six primary aspects of cancer activity within his subregional area. (Slide 2) His first responsibility will be to implement effective education programs for the practicing physicians of his community. An important approach to this continuing physician education will be his development of teaching tumor conferences held twice each month in his own community. Conferences will encompass both the presentation of

formal topics and the discussion of clinical problem cases of practicing physicians in the area. He will encourage physicians to present their problem cases. Each coordinator should be in a unique position to stimulate attendance at these conferences by virtue of his long standing personal relationships with the area practicing physicians. Through the critical discussion of the problems presented—problems with which the local physicians will closely identify—it is anticipated that a meaningful educational experience will be evolved for all physicians. A member of the medical college faculty will be present at one of these two conferences each month; this particular conference will be known as a coordinator teaching conference, namely a conference which will teach coordinators themselves as well as the practicing physicians of the community.

A second responsibility of each coordinator will concern allied health personnel education. The coordinator will implement appropriate educational programs for the many members of the allied health personnel team in his community. This effort will include instruction and training experiences for cytological and radiological technicians, nurses, physical therapists, rehabilitation aids, and other ancillary personnel involved in handling cancer patients.

A third responsibility involves public education. The coordinator will be concerned with information programs regarding both prevention and the

early detection of cancer. Education efforts related to cigarette smoking will be particularly emphasized with especial emphasis directed toward junior and senior high school populations.

A fourth responsibility involves a concern with cancer detection. We plan early implementation of a major cervical cancer detection program throughout the Albany region. This is a particularly interesting effort since the hospital code of the State of New York was recently revised to require Pap smears on specific female hospital admissions, and this effort by each coordinator is, therefore, an example of a regional medical program endeavor assisting a State agency in effectively implementing its program in area institutions. This particular aspect is being presented in greater depth elsewhere today by Dr. John Phillips of the Department of Postgraduate Medicine at Albany. The coordinator will also be intimately concerned with programs directed toward the early detection of cancer involving the head, neck, and breast.

As a fifth responsibility, each coordinator will be involved in the acquisition of full, appropriate data upon all cancer patients residing within his geographical area. Support for registry activity is not suggested under this project. However, the coordinator will oversee the obtaining of information upon all hospitalized patients. He will direct the pursuit of every other meaningful approach to

needs in their communities for education, manpower, facilities, equipment, consultation or whatever, and devise plans for improving them.

These plans will be submitted to a reference panel for review. The panels are composed of small groups of knowledgeable persons in the fields of heart, cancer, and stroke respectively. Such panels will provide the means for consultation about, and evaluation and modification of suggested programs. Upon completion of this step, approval of the program will be given by the advisory group and implementation initiated.

The approved project will be presented to the county medical society in the locality involved for the purpose of obtaining sponsorship of the program. With such sponsorship many more activities of program promotion can be undertaken than if support of this body is lacking.

With medical society sponsorship program preparation can be effectively begun. Prominent local physicians will be asked to provide leadership in making plans for implementation and will contact and involve appropriate ancillary health bodies such as nurses, hospital administrators, public health officials, voluntary health organizations, and other suitable individuals and institutions. Regional medical program staff will provide the stimulus, where needed, to keep the project moving and will be available for assistance. It is hoped, however, that this body will be on

the sidelines rather than at the center of the undertaking.

When planning has been completed, physician education will be started. This will consist of a complete explanation of the needs, objectives, rationale, and methodology of the program. Benefits that will come to the patients as a result of the project will be stressed. New tests, techniques, and concepts will be presented, discussed, and where necessary learned. The practitioner will be asked to become a participant in the program and will be assured that he will receive followup information about the results of the undertaking. Although we have spoken mostly of physician education, and we have done so intentionally to emphasize the key nature of the physician in community health programs, it is to be understood that similar education will be undertaken at appropriate times for nurses, technologists, and various other ancillary health personnel that will be concerned with the program.

Only when physician education is completed will steps be taken to inform the public about the program. Appropriate public and voluntary health agencies will be asked to participate in this activity. The techniques of publicity for this type of work are well developed and all methods will be used according to circumstances.

Ideally one would expect that professional education and lay publicity would be sufficient to move such a

program into orbit, but unfortunately this often is not so. Program stalling in our experience often comes from professional apathy or professional overwork. A busy practitioner, not having taken advantage of an available educational exercise, is frequently disinclined to promote a new program or methodology. At this point effective pressure can be put to bear on the delinquent physician through deliberate stimulation, under the guidance of the county medical society, by the patient. In our community we have said to lay audiences, "your physician knows about, and is a part of this project. Go to him, ask him about the program and tell him you want to join." After a number of such requests, the practitioner usually finds that he can incorporate the new techniques into his practice with little loss of time and with great satisfaction from the results. We have labelled this somewhat devious operation patient pressure. We feel that it is legitimate so long as the control of its use lies in professional hands. It removes from the practitioner the power to block, and at the same time relieves him of the full responsibility of promoting a good program. In addition patient pressure makes use of an almost unexploited resource for community health programs, the patient himself. Activation of this physician activity eventuates in meeting the patient's need and the cycle is thus completed.

This type of program has a number of advantages: It is simple and direct

and can be applied to many types of projects at various educational levels. It can be used in small as well as in large communities. It is relatively inexpensive to operate administratively, the major portion of expense being directly related to the educational procedures undertaken. It actively involves many professional and lay groups. It provides for the use of a largely untapped health resource, the patient. Finally, in our community it works.

obtaining information, including the study of county health department records, obituary columns in local newspapers and the solicitation of information from the practicing physicians of the county. The data collected from all of these sources will be transmitted to the Albany Medical College where it will be analyzed and made appropriately available. End results data will be continuously returned to the participating institution and area practicing physicians.

A sixth responsibility of each coordinator will be in the field of cancer consultation. He will be expected to fulfill the role of oncology consultant within his geographical area within a few months of the initiation of the project. Through his own continuous exposure to cancer problems and to cancer education, it is reasonable to anticipate that he will become both qualified and accepted as a community consultant in this field.

If each coordinator is to consummate satisfactorily his enumerated responsibilities it will be important that he involve himself in strenuous, sustained, and continuous self-education programs in the field of cancer. (Slide 3). There are several obligations which he will be expected to meet in this regard. Firstly, he will attend a 1/2-day cancer teaching seminar at Albany Medical College once every month. This conference will be specifically designed for the education of the collective group of area cancer coordinators. It will represent an intensive 4-hour instruction effort, care-

fully integrated month by month, to give all coordinators maximum insight into cancer prevention, detection, differential diagnosis, and treatment. Treatment will be explored in depth so that the coordinator will develop intimate knowledge of the role of surgery, chemotherapy, radiation, and isotopic therapy as they apply to the total spectrum of malignant diseases. These sessions will utilize a wide spectrum of the college faculty, but will also involve visits by authoritative consultants from other medical centers.

Secondly, as part of his own continuing education, each coordinator will gain from his previously noted responsibility for the development of two teaching tumor conferences in his own area each month. You will recall that one of these in particular will be attended by Albany Medical College faculty members and will be designated a coordinator teaching conference. At this coordinator teaching conference, the coordinator himself will receive penetrating instruction from college faculty members.

Thirdly, he will attend two coordinator teaching conferences in areas other than his own area each month. Through this process of coordinators supporting and participating in conferences of their conferees, increased educational effectiveness of the conferences themselves will be developed. The value of each conference as an educational tool for practicing physicians will be enhanced, while the coordinators are given an important

supplemental approach to their own continuing education in the cancer field.

Fourthly, coordinators will be expected to follow appropriate cancer literature, and to involve themselves in appropriate State and national cancer meetings and symposia. In these pursuits, they will be guided and assisted by an appointed member of the Albany Medical College faculty.

These enumerated continuing education experiences of the cancer coordinator should give each individual continuously increasing professional capability in the many phases of oncology. Each will become more fully aware of the various approaches which are available and to be considered with regard to the various special problems that present themselves in the cancer field.

It is proposed that a group of physician cancer coordinators be selected from the various respective subregional areas of the total Albany region. Each individual will be expected to attend twelve 1/2-day teaching seminars each year at the medical center. Each will be expected to attend and participate actively in 24 coordinators' Teaching Conferences, in areas other than his own each year. Each will then be responsible for organizing and supervising 24 educational tumor teaching conferences within his own area each year. Each will also be responsible for independently continuously improving his own professional capability in the cancer field.

He will be responsible for promoting interest in cancer among his medical colleagues. He will be concerned with instruction of allied medical technical personnel, with cancer detection programs, with general public education, and with coordination of information collection on all cancer patients.

Coordinators need not be hospital based and, indeed, often may be more effective if they are community, private-practice oriented. It is proposed that they be subsidized to the extent of 20 percent of their time through the Albany Regional Medical Program.

CANCER TRAINING, CONTINUING EDUCATION, AND COMPUTERIZED TUMOR REGISTRIES

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In order to improve the care of cancer patients, the first question that must be answered in any region is, What is the scope of the cancer problem? Inherent in this query is the search for an answer to the following: Number of patients affected, type and stage of malignancy, delay in diagnosis and treatment, where, how, and by whom treated, residence, recurrence rate, and survival.

In the Intermountain region we have solved this problem by developing an areawide cooperative tumor registry involving multiple States. The objectives of the cancer program are: (1) To survey the problem and establish local baselines, (2) To provide accurate, meaningful feedback to the practicing physician and the hospital medical staffs which may be beneficial in patient care, (3) To systematically followup patients through their physicians or, where

lost, then through public health nurses in order to discover localized recurrences, regional metastases, isolated metastases, and second primaries early enough to save lives, (4) To identify the deficiencies in patient services by weighing the demands of the cancer problem against the resources of manpower, facilities, and education which are currently available, and then to design operational projects to narrow the gap, and (5) To evaluate the effect of these operational projects on cancer prevention, early diagnosis, better treatment, and improved survival as depicted in the tumor registry.

We believe this computerized tumor registry system has many unique features which will make it succeed where others have failed:

1. It has been designed and is directed by oncologists to assist the practicing physician in patient care.

2. Utilization of computer technology to a multiplicity of problems and variables such as the numerous States, hospitals, physicians, patients, types, and stages of cancer, treatments, survivals, etc. enables us to correlate these factors more easily, rapidly, meaningfully, and economically than before.

3. We have the cooperation and participation of those interested in the problems of cancer patient care such as the medical societies, medical staffs, practicing physicians, State health departments, American College of Surgeons, and the American Cancer Society.

4. Gathering data by a few well-trained fieldworkers to cover those hospitals where there are no existing tumor registries encourages uniformity and allows quality control in gathering of data. An optical scan code sheet has been developed which allows a single step to the computer, eliminating typewritten abstract forms and keypunch operator.

5. Providing individual physicians with concise, organized, meaningful computer reports concerning their own patients which is a most rewarding learning experience for a doctor in practice.

6. Providing each medical staff with meaningful summary information and survival curves by site and stage of cancer for their own hospital.

7. Online analysis of the registry is most educational for medical students, interns, residents, and practicing physicians alike in that they can see the actual history summarized rather than reading from books.

8. Providing a monthly cancer letter to all physicians of the region covering one specific cancer, comparing our regional survival rates with national norms, and giving what is new in prevention, diagnosis, and treatment that might improve the care of patients.

9. Systematic followup letters generated by the computer to physicians reminding them to see the patient and report his condition is making the operation much more efficient, economical, and current, and allows the regis-

try to assist in saving lives rather than dealing only with past history.

10. Public health nurse, "Action Arm" for the following up of lost patients will save lives as well as make the data more accurate.

11. Automatic updating of patient followup through central tracking where patients change from State to State, hospital to hospital, or physician to physician, or through death certificates from the bureau of vital statistics of the State health department is most important.

12. Economical, efficient, uniform quality data, statistical analysis without a statistician, computer reports produced in finished, meaningful form not requiring decoding or reworking, easy interstate exchange of information as well as the ease of transferring this program to other computers with little cost or alteration are a few of the advantages of this computer program. One run of the data through the computer can analyze 10,000 cases in 1 minute and 23 seconds, providing individual hospital patient listing of selected items for 48 or more hospitals, or for 1,000 or more physicians at a cost of about \$15 total.

In summary, the reason that we are succeeding is that we are not merely a custodian of stored information but are doing something with the information which has practical meaning to the practicing physician in patient care.

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ASSURANCE OF ADEQUATE THERAPY FOLLOWING DETECTION OF CERVICAL CARCINOMA

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The statement that carcinoma of the cervix can be eradicated as a major cause of death is predicated upon certain assumptions. First, that the disease can be diagnosed in the in situ stage. Second, that it can be discovered in this stage. Third, that it can and will be adequately treated at this time. These assumptions are correct insofar as the pathologist can diagnose in situ carcinoma, the cytologist can alert us to those patients on whom adequate diagnostic procedures should be performed, and therapy is available which, if properly used at that time, can give us reasonable assurance of cure. To strengthen these prerequisites the New York State hospital code was recently amended to make it mandatory that all females age 25 through 54 admitted to a hospital licensed under this code must have a Papanicolaou

smear taken within 24 hours of admission unless it is medically contraindicated, or unless such a smear had been taken within the previous 36 months.

As a part of the Albany Regional Medical Program, we are instituting a program of physician and public education, training, and recordkeeping at the community hospital level, which we hope will not only give direction and support to the State requirement, but will allow us to compile accurate statistical information on the diagnosis, management, and followup of cervical carcinoma in the region.

The Albany Regional Medical Area is divided into five subdivisions. We are inaugurating this program in two hospitals in the western subdivision, two in the northern, and one in the southern. At the same time we intend to start an identical program in two community hospitals in our eastern subdivision. These latter hospitals are located outside of the State of New York, and are presently under no compulsion to take smears on hospital admissions. Comparing the results from the New York State hospitals and those two hospitals outside of the State, where the program will be entirely voluntary, should prove interesting and, we hope, informative. We expect to have the program established in these seven hospitals within the next 12 months and by the end of that time be in a position to, at least superficially, evaluate our results. We then plan to

extend the program to the remainder of our area community hospitals. The following is an outline of the procedure we will follow:

The first step will be to develop an educational program for the physician admitting patients to the community hospitals. To a physician doing any amount of gynecology this instruction will be superfluous. However, the law requires Papanicolaou smears to be performed on patients of all physicians. We would not expect all of these men to be as knowledgeable in the interpretation of the reports as they must be if the program is to succeed. The educational program will include demonstrations of the proper technique used in obtaining the Papanicolaou smear, discussions and explanations on the interpretation of the report, and especially, the proper followup required on patients with abnormal cytology. To supplement this information and bring it into proper focus in the overall project, and as a form of handy desk reference, a brochure explaining the standard procedures for following patients with abnormal smears is being developed.

This will be distributed to all the involved physicians. As the hospitalized patient has the prerogative of refusing to have smears taken, we expect our public relations department to help us in a general program of public education. This will be aimed primarily at an explanation of the reason for the procedure, with special emphasis being given to its simplicity,

painlessness, and benefit to the individual.

In order for the program to function smoothly in numerous community hospitals it will be necessary that a local coordinator be appointed for each hospital. This man, a physician on the local hospital staff, will receive a salary in proportion to the amount of time involved in his work.

A study will be made to determine how best to facilitate the obtaining of Papanicolaou smears in the individual hospitals. This will include any physical changes necessary in the hospital as well as the best utilization of personnel available for carrying out the procedures. It is anticipated that in most instances specially trained nurses can and will be utilized in taking the smears. These nurses will be given specific instructions, including practical experience in taking the smears, at the gynecological clinic at the Albany Medical Center Hospital. We shall also determine if a cyto technician or additional cyto technicians are necessary at the community hospital level.

Each hospital's present system of reporting and coding its cytology smears will be studied. It is hoped that a uniform system can be developed for all the involved hospitals so that process gathering and evaluation will have greater statistical importance. We will attempt to have all laboratories report their smears using Dr. Papanicolaou's original classification. The result of the smear will be placed on the patient's chart. A copy

will be mailed to the office of the patient's physician, and a second copy will be filed with the hospital coordinator. It will be his duty to see that every case of abnormal cytology is followed until such time as the diagnosis of malignancy is either confirmed or ruled out. It is expected that such ancillary personnel as a medical records librarian, the social service department, and the Visiting Nurses Association will become involved as aids to the coordinator.

It is obvious that all abnormal cytology reported should be properly treated immediately. This precludes the use of a doubleblind, or any other type of study, which might deny the best possible care to an individual. Evaluation of the project, therefore, will be accomplished by a yearly statistical analysis of the number of smears taken, the increase in the number of in situ carcinomas reported, and the increase in the number of 5-year survivals. It is hoped that these may then be compared with the figures obtained from comparable hospitals in upstate New York that are outside of the Albany Medical Program, as well as from hospitals in other areas throughout the country.

In summary, recognizing that carcinoma of the cervix in all probability can be eradicated as a major cause of death if diagnosis is made and acted upon at an early stage, it is our hope that by proper education, organization, recordkeeping, and close follow-up we shall be able to make a positive contribution in this area.

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COORDINATING HIGH ENERGY RADIATION THERAPY FOR 35 GENERAL HOSPITALS

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This is one of several papers arising out of the work of our planning experience in the organization of special services in general hospitals. The focal point of the planning is the need to strike the most desirable balance between centralizing the direction and decentralizing the specifics of selective operational services.

Some other aspects of our work are reflected in papers by Dr. Seligson in "Provision of Optimum Clinical Laboratory Services for Three Million People" and Thompson, "A Regional Utilization, Patient Information, and Statistics System."

The common objective of these proposals is to demonstrate with the major resources of the Connecticut region the best means of making the specific competences and skills availa-

ble to those professionals and institutions which render medical care at the local level.

Our purpose in investigating the potential of radiation therapy services arises from our view in the foreseeable future it seems that radiation therapy will continue to play an important part in the control of cancer and that this resource must be rationally planned if we are to continue to provide adequate service for the population. Problems arise when radiation therapy centers proliferate throughout the hospital system. The two most obvious are the need for relatively expensive equipment and construction and the lack of qualified people at all levels of professional and technical ability to support the centers when they are built. The consequences for quality of patient care are equally obvious.

Another matter of importance in pursuing the question of radiation therapy centers is the relationship of this service to the heart, stroke, and cancer mandate of the regional medical programs legislation. It is obvious that, with the direct relationship of radiation therapy to cancer, the investigation is essential in our approach to improved medical care in the Connecticut region.

The potentials of regional organization of radiation therapy centers is obvious. If successful, an optimum organizational pattern should help direct financial resources, and use of personnel, and facilitate quality patient care. Further, the organization

would encourage participation by the university medical centers in the affiliated centers thus increasing the capacity of the medical care system at the community level. This objective will be realized through a functional affiliation which will bring university consultation and continuing educational programs to the community affiliated center. Similarly, community based radiation therapy personnel will have an opportunity to participate in the university center's program.

Additionally, therapy centers will likely be created where there are supporting resources available to provide a multidisciplinary approach to the treatment of cancer.

The basic problem in Connecticut in relation to radiation therapy centers is the proliferation of these centers. Of 35 general hospitals in the State, 10 report the availability of super voltage therapy equipment. Also, three additional units have been formally proposed with one actually under construction.

The number of full-time therapists in Connecticut is eight, five of whom are located at Yale New Haven Medical Center. The majority of units are now staffed by therapists who are spending as little as 20 percent of their time and as much as 80 percent of their time in therapy work. Similarly, radiation therapy technicians are spending proportionate amounts of time in operating therapy machines.

While considerable information has been gathered from the inventory techniques employed by CRMP, further work is underway to better define the need for affiliated radiation therapy units in locations throughout the region. The State of Connecticut Department of Health supports one of the outstanding tumor registries in the country and use is being made of the statistical data available from this registry. We have been able to accumulate data relating the number of patients by hospital service areas as defined for Hill-Burton purposes and by the CRMP medical service areas. We have also been able to analyze radiation therapy contacts by hospital service area and CRMP medical service areas. We have also been able to tabulate yearly totals in rates per thousand population for the State as a whole and for the service areas. Not surprisingly, the cancer rates per hundred thousand population have risen over the 7-year period studied and the rates in urban areas are higher than the rates in suburban or rural areas. One of the problems presented by this data is interpreting the low rate in nonurban areas. Is it accurate or is it a matter of reflecting lower casefinding ability because of a lower physician-population ratio?

Further inventory studies are underway using the tumor registry and data from the CHA's uniform cost study. The latter will provide accurate and uniform cost data, and since radiation therapy was separated as an expense for the first time in the

last fiscal year, the data now available for the fiscal year 1967 will be collected to provide a base line of cost.

As the planning and resource group studying this problem pursues the matter, it is fairly obvious that an organizational pattern integrating the two university medical centers and a framework of affiliated centers will be recommended. The affiliated units will be recommended for development in areas indicated by study of the data from inventories. Ideal locations will be determined by population, incidence of cancer, and transportation routes among other criteria. These locations will be subjected to at least two other tests. First, they will be matched with relationships between university centers and community hospitals initiated in the CRMP. Secondly, they will be studied in relation to existing radiation therapy units and possible adjustments made to fit the ideal to the existing. This program will be illustrative of the two-way street between the university and the community which is the concept of the CRMP. Patients will be referred from the affiliated centers to the university center when such referral seems indicated. Perhaps more important, the university centers will provide consultation help of therapists, technicians, physicists, electronics technicians, and other specially qualified personnel. Further, the universities will provide educational programs both formal and informal for all groups of personnel.

As the patterns of organization in relationship to each center will parallel development of university-community affiliations initiated in the CRMP, the therapy program and the medical care framework will be mutually supportive; thus creating the integrated patient care and educational pattern envisioned for the Connecticut region.

As a second concept, the program would also hope to provide from its base-line data, and other information, consultation on the matter of developing centers. This consultation would include the need for new centers, organization, type of facilities, relationship to university centers, and training of personnel, etc.

The third and probably the most sensitive concept is the development of standards. It became apparent when discussing the need for affiliated centers that some criteria had to be established for the centers in order to provide a reasonable and qualitative total program. We have been assisted by two existing sets of standards: the National Cancer Institute of Canada has published a set of standards which are available. Secondly, the American Society of Therapeutic Radiologists has made recommendations to the National Cancer Institute. These recommendations include reference to numbers of patients annually, type of equipment required, and the number of personnel required. The recommended standards also include the following comment:

... The selection of suitable locations for centers must take into consideration the availability of related services, which for any one major center should include the following: cancer surgery (general head and neck, urological, neurosurgical, chest, gynecological, orthopedic, and plastic), anesthesiology, medical oncology (cancer chemotherapy and supporting services in internal medicine), cancer pathology (surgical, autopsy and research), nuclear medicine, diagnostic roentgenology, psychiatry (both psychiatric and general social work), occupational therapy and rehabilitation services, statistics in epidemiology support in hospital-type facilities for diagnostic and followup program. . . .

We are currently using these standards to develop standards which will be applicable primarily for Connecticut.

It seems fairly obvious that as the planning within the framework outlined is successfully completed, optimal radiation therapy service will be provided to the people of Connecticut. It may also be a prototype for other regions around the country. No doubt the guidelines will have to be adapted to those areas of the country where distance between urban centers and radiation therapy sources are greater than in Connecticut.

We face two major challenges in successfully developing the program as described. The first is that it is almost impossible to test the results of the program to demonstrate that it has been successful. The base-line data on the medical applications of radiation therapy and the results of treatment are probably not yet good enough to provide an accurate test.

To prove the second benefit of the program, to rationally direct financial resources and manpower, may be less difficult. Here we may be in a position to provide some results as we will have data accumulated before the initiation of the program on a wide scale. However, cost centers change so rapidly that we may not be able to relate costs in 1975 to 1967.

The last and possibly most difficult problem will be the salesmanship, involved in integrating the program, to the various hospitals and radiologists and, in fact, the population of the State as a whole. There is a great deal of local pride invested in the radiation therapy unit and it may be difficult to have this pride put aside. People have demonstrated time and time again that they wish to seek their medical care close to home whenever possible and travel for radiation therapy treatment is certainly among the most difficult for patients. Yet in the final analysis, regional planning in this area of medical care as in others must not be predicated upon expert or professional judgment alone. Increasingly, the wisdom of the decisions to be made and the use of resources rests upon the technical consciousness of the consumer public. Involvement, understanding, and knowledge of the citizenry to be served must be an integral part of the program.