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HOSPITAL PRACTICE FEATURE: "The Program
Is Regional, The Feedback Is Local"

The feature on Regional Medical Programs which appeared in the September 1968 issue of HOSPITAL PRACTICE is reproduced in this issue for those who would not otherwise have the opportunity to see it.

In addition to its regular readers, this article was read and received favorable comment from Senator Frank Moss (D-Utah) on the floor of the Senate and was reprinted in the Congressional Record of October 2, 1968 at his request.

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The Program Is Regional, The Feedback Is Local

C. HILMON CASTLE *University of Utah*

Late on a Saturday night just before Christmas last year, a 65-year-old man was admitted to the coronary care unit of a Billings, Mont., hospital. As the nurse attached electrocardiographic leads and inserted an intracath to monitor venous pressure, the patient went into ventricular fibrillation. The nurse defibrillated him quickly. A supervisor attributed his

survival to the Intermountain Regional Medical Program's course in coronary care, which the nurse had completed hardly a month before. Held at the University of Utah Medical Center and three hospitals in Salt Lake City, the course had emphasized what a nurse should do in cardiopulmonary emergencies in the absence of a physician. It had also covered recog-

nition and treatment of arrhythmias. Commenting on the Billings episode, the supervisor wrote IRMP headquarters at the medical center: "We are very proud of her and of the wonderful work you are doing for the people of our community."

Billings is about 380 miles from Salt Lake City, as the crow flies, on the other side of the Rocky Mountains. No form of transportation could have brought this patient to the medical center in time to save him. In the person of the trained nurse, however, the medical center was at the bedside. If the words "medical center" are taken to mean the place where the latest advances in medical knowledge, equipment, and skills are ready for application, then I can phrase the IRMP's objective as that of putting every patient in a medical center.

The IRMP, covering one of the largest and most sparsely populated areas among the 54 regional medical programs spanning the U.S., includes the entire state of Utah and portions of Wyoming, Colorado, Idaho, Nevada, and Montana. This area of 2.2 million persons has 129 hospitals, mostly under 50 beds in size, and approximately 2,000 physicians in 100 communities in and around the "Great American Desert." Trying to help medicine flourish despite the handicaps of geography and population scatter has never impressed us as easy in any way. By "us" I mean the medical centers, medical associations of the states and counties, and hospital staffs. In August 1966, after months of preparation, the IRMP received a \$456,000 first-year planning grant under the federal law aimed at combating heart disease, cancer, stroke, and related diseases. In its short lifetime, the IRMP has recruited a staff, set up lines of communication, explained itself to lay and professional persons, identified urgent needs, and established pilot projects.

Of the 13 pilot projects funded since April 1967, the course in coronary care attended by the nurse from Billings probably best illustrates the outlook and modus operandi of the IRMP. This project was based on the philosophy that effective postgraduate education is problem oriented. And our other efforts for physicians, too, are aimed at helping the practitioner solve problems he meets in his daily work and at doing so with an under-



● 'Core Faculty' ○ Cardiopulmonary Resuscitation Programs □ Nurses Training

Heart disease programs have fed back to many parts of Intermountain region (outlined). Twenty-three community hospitals now have "core faculty" physicians who have attended courses in acute coronary care; courses for nurses have been held at four centers.

standing of how people learn and what is attractive to the learner.

In 1966, to gain a general impression of the Utah practitioner's perception of his needs and to begin a dialogue between the practicing and academic communities on what to do to improve patient care, a survey was made in the state by the American Medical Association, the Utah State Medical Association, and the University of Utah College of Medicine.

We found that Utah physicians are similar to other American physicians in education and specialty distribution. They work 53 hours a week on the average. Half of 456 physicians responding to the survey (907 were polled) indicated they felt they saw too many patients. The survey yielded estimates that from 20% to 50% of what they do in practice could be done by an assistant under their supervision. Physicians spent relatively little time in planned continuing education and mostly just read journals. They had no system for feedback in their educational efforts and no reliable way of telling how well they took care of patients. Interestingly enough, the survey found that physicians spent almost as much time on third-party-payer forms as on continuing studies.

There was marked variation in the educational needs perceived by physicians in various specialties, and there was no correlation between the most frequent problems they encountered in their offices and their list of priority needs. We learned from the survey that what a physician wants to know and what he needs to know are not necessarily the same. For example, he may want to be able to read cardiograms expertly, but an audit of clinical records may show he has a greater need to learn how to utilize digitalis.

In the past few years, intensive coronary care units (CCU's) have been established in nearly two dozen hospitals in the IRMP area. Physicians have expressed a desire to learn how to use this facility properly where it exists locally or how to obtain a unit

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and the personnel to staff it. In planning discussions, it became clear to us that a postgraduate medical education effort centered on CCU's had a ready-made audience among physicians as well as hospital administrators and nurses. We recognized that the university faculty could carry only part of the burden. The solution: The physicians who need to learn must also become teachers.

One of our first moves was to identify the community hospitals with CCU's in which the physicians and nurses were willing to undertake training that would enable them to become supervisors or teachers for the units. These physicians would be expected to carry the knowledge gained at a medical center back to other physicians and to hospital personnel in their communities. The physicians were designated "core faculty members" of the IRMP. We found that training in acute cardiac care appealed to practitioners in several ways. Some wanted to improve their reputations for expertise, some wanted identification with the university, some wanted to be able to specialize more in cardiology, and some just wanted to learn something new and become better doctors.

Let me talk of our start in terms of a single community. Ogden, Utah, 35 miles from Salt Lake City, has a population of 150,000 within about a half-hour's automobile drive. Both hospitals in Ogden — Dee Memorial and St. Benedict's — have excellent CCU's. In trying to find prospective core faculty members, we ran into reluctance. As one physician expressed it, "It sounds like a good idea, but I'm not sure I want to be in a program supported by the federal government. Let me think about it."

We explained the nature of the federal RMP law, especially the commitment to local initiative. Finally, we found two physicians able and willing to join the core faculty. Both had special training in cardiology but wanted more, and both were willing to help hospitals in the medical service area linked to Ogden hospitals (an area extending as far as Idaho). Important to IRMP effectiveness was the willingness of these physicians to help other hospitals set up CCU's. Our hope was that the Ogden hospitals and core faculty members would be able, in time, to add to the IRMP's training capac-

ity and thus minimize reliance on extraregional resources. Before IRMP was operational, Ogden had 80 nurses outside the state for training.

The two physicians from Ogden and 23 from 11 other communities made up the first group of 25 to be trained as core faculty members. Prior to the first training session, core faculty members and IRMP representatives had discussions on what the physicians' commitment meant, what our commitment meant, and what problems each party might confront. As core faculty members, we explained, they would be on the medical school clinical faculty in cardiology. They were told that the IRMP would pay them a nominal stipend or consultation fee for time spent in teaching coronary care. For supervising the care given in the CCU's and while training they would receive no fee.

The core faculty is expected to attend a series of three three-day courses within one year. The three-day span was picked as long enough to convey a solid block of instruction and convenient for the practicing physician. The series of courses eventually will tie together to provide the knowledge and skills required for expert coronary care as well as for effective teaching.

The inaugural course, held in January, focused primarily on arrhythmias and electrical pacing, but also covered elements of data gathering and teaching. The 25 physicians were busy from morning through evening in seminars, lectures, and laboratory demonstrations conducted by five nationally known cardiologists and members of the University of Utah faculty. One result of the course was that physicians from the region were drawn together and came to know the facilities and expertise available in other communities that might benefit a patient with a particular cardiac problem. They also became familiar with the resources of the medical center — its library, faculty, laboratories.

The objective of the courses is not to dictate to the physician how a CCU should be run but to give him a background and assistance that he can apply in his local community. After he returns to his community, the IRMP maintains contact, providing information, guides to practice, help in solving problems of care and teaching, and

observations and suggestions about medical, nursing, and administrative activities on which he seeks assistance. We make sure the physician receives guides published by the American Heart Association and American College of Cardiology on coronary care.

To help the physician in teaching his CCU nurses and in evaluating their performance, we give him a "Coronary Care Curriculum Guide." In addition, we receive data from each CCU on the management of their patients. We are establishing a form to be used by all CCU's that will help the physician review the activities he supervises. The form also will help us compare the performances of units so that we can identify successful and unsuccessful patterns of care and adjust our training objectives.

Because record keeping is so important to quality control and training, as well as to research, additional details of our approach may be of interest. The clinical data sheet we are developing will provide a uniform system for recording events in the patient's illness and treatment chronologically and in detail. This chronology is expected to permit an expert cardiologist to review the case and ask searching questions about what the physician or nurse did or could have done before or after an event. The sheets should help identify associations between treatment patterns and patient responses. In short, the data will become our teacher.

The responsibility to furnish data on the sheet becomes a stimulus to maintaining quality of care. For example, since the practitioner must record parameters that are significant when an event occurs, he cannot forget these aspects of care. The record also is important as a feedback for IRMP teaching functions. At first the data sheets will be collated manually, but their design permits their adaptation to computer analysis.

Coronary care units provide an excellent opportunity for research, and indeed there is no better way to grasp clinical cardiology than through research at the bedside. Two core faculty members are currently collecting descriptions about patients' responses to various drugs and procedures employed in shock. From this effort they, and we, will learn more effective means of treatment. We will also learn

23 RMP's Now Operational

Among the 54 Regional Medical Programs a total of 23, including the Intermountain, had gone operational as this article went to press. Eleven more had applications to become operational under review in Washington, and Puerto Rico had just received a new planning grant.

The 23 operating RMP's are as follows: Albany (N. Y.), California, Central New York, Georgia, Intermountain, Iowa, Kansas, Maine, Memphis, Metropolitan Washington (D. C.), Michigan, Missouri, Mountain States, New Mexico, North Carolina, Oregon, Rochester (N. Y.), South Carolina, Tennessee Mid-South, Texas, Washington-Alaska, Western New York, Wisconsin.

how to collect data more effectively. Looking far down the line, I can visualize the transmission of data from a CCU by data-phone directly from sensors on the patient so that the attending cardiologist may query the computer's memory on experience of one therapeutic maneuver versus another in thousands of stored case records. In four hospitals we are now using the computer to collect data and establish ranges of hemodynamic parameters in patients with heart and lung diseases as well as in normal people.

Our nurses' training program began before the physician training effort. By early 1968, over 100 nurses had been through a three-week curriculum that gives them a foundation in acute cardiac care. After a three-month interval, they return to the medical center for another week of instruction and review of practical problems encountered in patient care and in teaching their peers. During the three-month interval they receive "homework" and tests by correspondence. For instance, they are sent cardiograms to analyze for arrhythmias (and the IRMP checks the answers). We emphasize this ability because nurses encounter problems in rhythm every day. While they are in training at the center, their expenses are reimbursed by the IRMP, and their salaries are maintained by their hospitals.

Besides physicians and nurses, electronics technicians receive training at

the medical center. A by-product of physician and nurse training is a greater demand for expert maintenance of CCU equipment. Eventually, we expect to identify the aspects of coronary care that a licensed practical nurse can take over from the professional registered nurse (who already does many tasks that two years ago were performed only by a physician). Delegation of tasks to personnel with less formal training can be done, but only if training in coronary care has been thorough and quality of care is closely controlled. With the help of a cardiologist panel we are analyzing many of the CCU functions to see which aspects of care can be delegated.

As IRMP-trained physicians and nurses at hospitals in Ogden, Pocatello, Reno, and other communities instruct more physicians and nurses, the demand for CCU's will grow. In a sense, we complete a circle that began with the need to staff existing CCU's with well-trained persons. The availability of training will spur outlying hospitals to have CCU's. In my opinion, most general hospitals need such a unit. This should no longer be a question for debate. A basic rationale of the federal law is to provide equal access in every region to the highest quality of care regardless of the patient's place of residence, and this requires ubiquity of CCU's. But even if the law did not exist, no physician responsible for a cardiac patient today should lack affiliation with a hospital having a CCU.

The IRMP ideal is to have almost every patient within an hour of a CCU. Practically, we aim at having 90% of the population in our region within 50 miles of a unit. To accomplish this, the region needs to add 20 more CCU's to the 20 it now has. We also are investigating the use of helicopters and other mobile units to reduce transportation time. The mobile unit might have drugs, intravenous fluids, devices for closed chest compression, an oscilloscope to display rhythm, a defibrillator, and equipment for cutdowns and passing catheters.

Another ideal is to link all physicians in postgraduate educational activities. We have a two-way radio network covering 40 hospitals and the medical center, plus a system of acquiring, producing, and distribut-

ing films, slides, and television and sound tapes for medical education. Eighteen hospitals already have conference rooms for teaching, 10 have audio playback equipment, and four have TV tape playback capability. Nine hospitals have audited medical records systems integrated with educational programs. The IRMP provides consultants on patient care problems in various diseases, laboratory services, and medical education projects, and offers a cadre of teaching faculty for community hospital education programs, a dial-access system for information on specific clinical subjects, and library loan services.

The use of these resources depends on practitioner interest and need. The problem-oriented approach has been shown to be very effective in the coronary care effort. This approach is being applied to the cancer and stroke targets framed by the basic federal legislation under which IRMP operates. As these efforts reach the level of the coronary care effort, there will be a need to coordinate activities within a hospital, among hospitals, and between hospitals and the university. This role will be filled by a medical education coordinator (MEC) in the community who is selected by the medical profession in the community and the IRMP. The IRMP now has six MEC's, and two of them are in Ogden. One of the Ogden physicians who helped identify core faculty prospects and work out communications with the university is a full-time MEC. Other physicians serve part time.

The hospitals served by the MEC's will become — through heart, cancer, and stroke projects — controlled educational environments in which medical students can be observed and evaluated as they are introduced to the problems of medical practice in the community. With proper supervision and assistance, many community hospitals can provide learning experiences comparable to, and in some ways better than, those in university teaching hospitals.

Cross-fertilization of projects in heart disease, cancer, and stroke is evolving. We expect that a computerized tumor registry with a system for patient follow-up and physician education will be a model for a coronary registry. The cancer prototype is a tool for helping the physician evaluate

the quality of care his patients receive and for providing direction in developing educational programs and diagnostic and treatment facilities. Systematic data collection and reporting through the regional tumor registry are expected to help us understand patterns of disease within the region and how local environmental factors influence them. Collection of data in remote communities may stimulate clinical research on the types of patients confronting the local practitioner rather than the highly selected patients seen by specialists in a large medical center. The registry is a further application of our belief that clinical research in communities will catalyze postgraduate education.

Besides linking physicians and hospital colleagues, the IRMP is encouraging development of community committees of professional and lay persons to assess community needs, voice criticism, and express expectations. So far, only three such groups have been formed, in Butte, Pocatello, and Reno. We are watching their evolution to see the kinds of roles they will play. We believe that such committees could make surveys of what physical facilities and services the community needs, what is being done

to obtain them, and how the IRMP might help. Suppose, for example, that the committee, on the basis of local data on the incidence of myocardial infarction, determines that the local hospital needs a CCU. It might launch a fund drive, simultaneously lining up support for planning and training from the IRMP.

Our message to communities, hospitals, and physicians boils down to this: "Come to grips with your own problems. We will help identify them and find solutions." Toward this end the IRMP is making up health care profiles for each community in Utah, showing available manpower and hospital facilities, socioeconomic characteristics, and financial resources. We are still in the early stages of our work, but I believe our coronary care projects have already shown how regional medical programs can improve the distribution and quality of care. They are thus helping to realize — without compulsion or outside dictation — the goal of the federal law: "To encourage and assist the physicians and medical institutions of the nation to make available to their patients the benefits of medical-scientific advances in the fields of heart, stroke, and cancer." □