By reviewing the historical background of hospital regionalization, researchers are aided in applying the techniques of industrial engineering to the problem of improving the efficiency and economy of hospital services in geographic regions.

Hospital Regionalization in Perspective

MILTON I. ROEMER, M.D., and ROBERT C. MORRIS, M.S.

REGIONALIZATION of hospital services has become a popular theme in the United States. Since 1947, State master plans for hospital construction under the Federal Hill-Burton Act have been based on this concept. Regional and metropolitan hospital councils are set up in 11 States. Insurance commissioners, faced with rising Blue Cross premiums, have called for regional coordination of hospitals to reduce costs (*1*). A series of conferences has been held across the Nation on planning hospital systems, in which regional organization is the key problem. Seasoned hospital leaders call for more research in the field (*2*).

But the meaning of "hospital regionalization" is not always clear. To some it is simply an approach to making decisions on where hospital buildings are needed and how many beds should be provided at each location. To others it means a systematic scheme for cooperation among hospitals in their day-to-day operations. To a European, it usually implies unified management of a network of hospitals in a geographic region. And there are other defined points in the range of possible meanings.

In fact, hospital regionalization has had different meanings historically, and it has different meanings today in different parts of the world or different places in the United States. Perhaps the only common note in all the interpretations is an element of coordination, in planning construction or in actual operations or both, among a group of hospitals in a geographic region. Ways of expressing this coordination vary greatly. The intention is always to give the hospital program a rational structure in order to improve the quality of service or reduce the costs or both. But whether this goal has actually been achieved by regionalization efforts or how it might be best achieved are large questions to which we do not have answers.

If we take a closer look at the hospital regionalization movement, we may gain perspective in designing research to answer these questions.

Dr. Roemer is director of research, Sloan Institute of Hospital Administration, Graduate School of Business and Public Administration, Cornell University. Mr. Morris is a research associate on the staff. *This paper was prepared for presentation at the Rochester, N.Y., Regional Hospital Council meeting this fall.*

Historical Background

It is customary in the United States to trace the origin of the hospital regionalization idea to the program of the Bingham Associates Fund operating in Maine since 1936 (*3*). Here was an effort to bring first-class modern scien-

tific medicine to residents of the rural areas and small towns of Maine. The emphasis was on improved resources for medical diagnosis. The base center is in Boston, where difficult cases are sent. Then there are two regional or district hospitals in the principal cities of Maine and 38 cooperating small community hospitals around them. More recently western Massachusetts has been added to the program. In this area four larger hospitals, lying close together, jointly serve as a regional center for 10 smaller community hospitals. Laboratory specimens and X-ray films are sent from the community hospitals to the regional centers for examination, and consultants go outward from the centers to advise the rural doctors. Physicians are encouraged to come to the centers for postgraduate education. Consultation is also offered in nursing, dietetics, medical record-keeping, and other aspects of hospital administration.

This program, with its two-way flow of patients and services, now the hallmark of the regionalization concept, was built with outside philanthropic support. Certainly the quality of services in the smaller hospitals has been improved, but we have little, if any, idea of the relative costs and whether the same end might be served in other less expensive or more effective ways.

The basic idea of hospital regionalization, however, is much older than the Bingham program. In Denmark, around 1912, the decision was made to avoid further building of rural hospitals and to bring patients with complicated illnesses from rural areas to the central hospitals. A network of institutions was developed, centering in Copenhagen and branching out to the whole country (*4*).

In 1920, there appeared an English study on improving hospital services which described the basic scheme embodied in the British National Health Service 28 years later. The Dawson report called for establishment of a network of hospitals within which all services could be integrated. It defined primary and secondary health centers and recommended that the smaller units, staffed mainly by general practitioners, be supervised by the larger ones, staffed mainly by specialists. The report even sketched prototype centers, showing buildings and layouts and listing services to be performed (*5*).

Military medical establishments have long been organized on a regional scheme, with base hospitals, division or theater-of-operation hospitals, and field stations. Highly systematized, of course, these hospitals demonstrate the feasibility of actual administration of many institutions by a central authority.

Colonial governments have likewise operated hospital systems through central authority. In Asia and Africa, there are capital and district hospitals, with small health centers or mobile clinics at the periphery. Countries liberated from colonial domination, such as India or Indonesia, have usually retained and developed these regional hospital networks.

With one or two exceptions, Catholic sisterhoods do not operate regional hospital networks, but they have long exercised central authority over certain aspects of their hospitals which may be located in scores of far-flung communities. Funds are pooled which may be channeled to provide construction and equipment wherever it is most needed, and uniform administrative policies are usually enforced.

These are expressions of the hospital regionalization concept originating many years ago. In fact, if we think of regionalization as a range of activities, we must go back even further. For any step of a hospital from isolation and self-sufficiency toward interdependence with other agencies or organizations is fundamentally a move in the direction of regionalization.

Thus we can visualize a hospital in colonial America, such as the Pennsylvania Hospital in 1751, as an institution quite alone. The staff may not have grown their own food for hospital use, but surely they made most of their own bandages and supplies. There was, moreover, little to be purchased from the commercial market. There were ideas brought from Europe, but their implementation was entirely up to the small staff working in this solitary structure.

As other hospitals were established, as industry grew, as medicine developed, the hospital obviously became less isolated. Equipment and supplies were produced by industrial companies. Educational institutions trained skilled personnel needed to staff the hospital.

A public health laboratory did tests on hospital patients. A State agency was given legal authority to approve certain aspects of hospital construction or operation. Money to support services for certain beneficiaries was derived from diverse public and voluntary agencies. Associations of hospitals were formed for educational and promotional purposes.

In different countries, this process of dynamic inter-relationship among hospitals has evolved in different ways and to varying degrees. In general, the process has gone further in countries where governments at all levels, national, provincial, or local, have become largely responsible for the ownership and operation of hospitals. This is, indeed, the predominant pattern in Europe, Latin America, Asia, and in fact the entire world outside the United States and Canada (*6*).

Even in the United States, however, the regionalization process has been clear and gaining momentum. Much of it has been on a casual, spontaneous basis. Patients are transferred from one hospital to another. Equipment is sometimes lent. A radiologist based in one hospital interprets films sent by another. A blood bank in one hospital sends a pint of blood to another.

Other expressions of the process toward integration and coordination of hospitals have been more formal and systematic. The Bingham program has been mentioned, and it is historically important not only for the specific mechanisms it pioneered but also for the attention it focused on the need for improved medical care in rural areas.

As America has become industrialized and urbanized, the rural areas have, in a sense, been left behind. The same is true all over the world. A special consciousness of the problems of rural medical care emerged in the 1930's. The first conference on rural medicine was held at Cooperstown, N.Y., in 1938. The Bingham program in Maine got started. The Commonwealth Fund launched its program of building rural hospitals and supporting medical education for rural youth. Improved public health organization in rural counties was promoted. The U.S. Department of Agriculture started its medical care program for low-income farmers (*7*).

It was during World War II that the regionalization idea matured as an approach to improved hospital service for rural people. Public understanding grew and plans were made for a federally subsidized construction program. In 1945 the Commonwealth Fund promoted the Council of Rochester Regional Hospitals (*8*). Immediately after the war, in 1946, the National Hospital Survey and Construction Act was passed, providing not only funds to subsidize hospital construction but requiring a master plan to be drawn up by each State establishing priorities for different localities. Virtually everywhere the rural areas received top priorities because their relative bed shortages were greatest (*9*).

Under the impetus of the Hill-Burton Act, planning groups studied bed needs in all the States. A formula calling for 4.5 to 5.5 general hospital beds per 1,000 population in a State made planning for construction purposes relatively easy. Planning for coordinated hospital operation, however, was not so easy. Attractive charts portrayed networks of regional, district, and community hospitals in each State, implying the classic two-way flow of patients and services. In practice, the State hospital construction agencies were seldom in a position to bring life to the charts in day-to-day hospital operation.

Coordinated Operations

Nevertheless, the introduction of rationalism into construction planning stimulated voluntary groups to do something about coordinating hospital operations.

National attention was focused on the regionalization experiment around Rochester. Elsewhere in New York State regional hospital councils were organized, not simply to process applications for construction funds but to promote interhospital cooperation (*10*).

State hospital associations became organized or revitalized. They conducted educational and informational programs for their members. Training institutes were held for hospital trustees and administrators as well as for nurses, dietitians, medical record librarians, laboratory technicians, and business office personnel.. Uniformity was introduced into ac-

counting practices so that hospitals could deal effectively with third-party payers, such as governmental welfare agencies or Blue Cross hospital insurance plans.

The hospitalization insurance movement did a great deal to bring autonomous hospital administrations together. Through boards of directors of regional Blue Cross plans, hospital advisory committees, and other mechanisms, administrators discussed common problems of hospital operation. Many of these problems are expressed ultimately in per diem costs which the prepayment plan is expected to meet. To sell Blue Cross insurance policies, premiums must be kept as low as possible, and yet premiums are based on hospital operating costs. While costs have indeed been rising, in line with the continued improvement in the content and quality of hospital service, the Blue Cross program in recent years has exerted moderate pressure toward economy and efficiency in hospital operation.

It is true that some observers doubt if paying agencies are doing enough to induce economical operation of hospitals. It is even claimed that prepayment has led to extravagance. The challenge of the State insurance commissioners has been mentioned. Representatives of organized workers, who make up a large proportion of the Blue Cross membership, have been skeptical of the efficiency of hospital administration. In any case, public pressure created by a vast extension of prepayment for hospital care is doing much to bring hospitals together to explore common problems of effective administration.

One expression of this is the organization of joint purchasing arrangements. While the development is still modest, in some large cities hospitals have agreed on standard specifications for linens, laundry supplies, antiseptics, certain drugs, and the like, and have achieved lower prices through mass purchasing. The Hospital Bureau of Standards and Supplies, Inc., is a national organization devoted to this purpose. A nonprofit organization, it purchases many commodities for its hundreds of members, does product testing, and issues informational bulletins. Similar group purchasing activities are conducted by the hospital councils in Rochester, N.Y., and Harrisburg, Pa., by the Federation of Jewish Philanthropies of New York City, and by others. The purchases made in this way, however, usually constitute only a small percentage of the total made by the cooperating hospitals (*11*).

Another measure of cooperation is the pooling of resources for educating nurses. Certain types of didactic instruction are given to the student nurses of one hospital in the training school of another. Students from many general hospital schools of nursing may receive practical training in mental disease, pediatrics, or obstetrics in "affiliated" hospitals specializing in these fields. In Saskatchewan, Canada, in Massachusetts, and elsewhere, centralized lectures for students from many nursing schools have been given in universities.

Medical schools have taken the initiative in a number of places to promote postgraduate education of physicians through the local hospitals in a region. Programs around the medical schools at Buffalo, Richmond, New Orleans, and Berkeley have been outstanding. Rotation of interns and medical residents from a university hospital among several surrounding community hospitals is a growing practice which helps elevate the quality of service in the smaller institution while it gives the young physician insight and experience in a simple grassroots setting (*12*).

Regional and metropolitan hospital councils with full-time staffs in the United States have increased from the first one at Rochester, N.Y., in 1945 to 23 in 1958 (*13*). Their functions vary greatly, but they all represent a pooling of interests by several institutions to achieve improvement in hospital service. The majority of the councils have been organized in large metropolitan cities, where a dozen or more hospitals are found. Their scope of activity changes from year to year, but there has been a clear tendency to progress from an original primary concern with construction planning to the wider problems of the content of hospital service.

Even so, hospital council activities are still oriented more to administrative problems than to elements of direct patient care (*14*). Programs depend on council members and their needs of the moment. While the Syracuse council, for example, regularly summarizes

vital statistics for hospitals of the region, it also does many one-time jobs, such as preparing a booklet to recruit young people for work in the hospital field. The Buffalo council supplies a clearinghouse for employment. The Philadelphia council does much to encourage uniform accounting procedures. The Harrisburg council is now deeply involved with reorganizing activity to comply with the Pennsylvania Insurance Commissioner's ruling of 1958 (*1*). The Chicago council is making arrangements with the telephone company and the many local fire and police departments for coordinated hospital action in the event of disaster. The Swift Current council in Saskatchewan provides consultant services in X-ray technology, pharmacy, dietetics, and accounting to its member hospitals (*15*).

Thus, hospital councils are in a stage of vigorous growth. Aside from their basic services, they are laying the groundwork for greater cooperation among sovereign hospitals in the future.

Evolution of interhospital cooperation to the point of unified management of several institutions has occurred only in a handful of places in the United States. Federal hospital systems for veterans, Indians, merchant marines, and similar groups under the Veterans Administration, Public Health Service, and other agencies, are, of course, highly rational. These programs, however, started out on a centrally organized basis under uniform rules and regulations. They do not include community hospitals open to all persons.

The closest thing to regional management of a network of community hospitals is seen in the Miners Memorial Hospital Association of the United Mine Workers of America. Supported by the welfare and retirement fund of this union of coal miners, the association operates 10 hospitals in the Appalachian Mountain States. There are regional and peripheral hospitals in the system. Authority is centralized with a branching-out of delegated responsibilities. Functions involving direct patient care are, of course, locally based, while supportive activities, such as accounting and payroll, specialized plant maintenance, purchasing, and staff hiring are done regionally for the entire group. Financial functions are centralized to an even further degree; they are performed with electronic equipment at the United Mine Workers headquarters in Washington, D.C. (*16*).

In the Adirondack section of New York, there is a group of three small hospitals, set up by the Noble Foundation, under single management. Some church missions operate a network of small hospitals in the southwestern United States. In western Pennsylvania, the hospital division of Grenoble Hotels, Inc., is a private organization engaged in the business management of 11 general hospitals under voluntary auspices. Five independent hospitals in Newark, N.J., have just consolidated their administration as the United Hospital Association.

The Commonwealth of Puerto Rico, with the support of the Rockefeller Foundation and the Public Health Service, is developing a regional hospital system under central direction. A large regional center, 3 district hospitals, and about 14 small community hospitals are in the network. Not only is the management of all these hospitals unified, but even medical services throughout the region are supplied or directed by a staff of qualified specialists located at the regional center (*17*).

Discussion

This, then, is a brief review of where we stand in the United States in the broad range of hospital regionalization activities. A great deal is going on and established ideas of hospital services are obviously in ferment. Yet the surface of the possibilities of regionalized hospital services through teamwork in natural trading regions has hardly been scratched.

The chief determinants of the degree of interhospital cooperation are philosophical and technical. The philosophical or ideological determinants are found, of course, in our whole system of free enterprise in health service. They include the existence of two types of sovereignty: the autonomy of the boards of directors of voluntary hospitals and the independence of the practicing physicians who staff the hospitals.

We have seen how small bits of these sovereignties have been yielded through increased

cooperative activities among hospitals. Professional independence also has been modified by the widening group discipline within the medical staff organization in hospitals. Appointment of full-time chiefs of clinical services, centralized medical audit procedures, diligent tissue committees, and limitations of privileges have all helped to introduce a collective conscience into the practice of medicine in hospitals.

These two levels of sovereignty are central features of American health service, and they will doubtless be part of our life for a long time. Yet we are finding that cooperation and teamwork among hospitals does not reduce the dignity of the individual patient, doctor, board member, or administrator.

It is, however, the second determinant of any interhospital cooperation, the technical aspects, that will ultimately be most decisive. How much is really to be gained in effective hospital service by more highly organized relationships among institutions in a region? How much can the quality of care be improved by joint action and how much can costs be reduced?

To answer these large questions, they must be broken into many smaller parts. There are perhaps 15 to 20 principal activities involved in hospital service: nursing care, laboratory service, dietetics, business management, and plant maintenance, to name only a few. Under each of these are dozens or even hundreds of subdivisions. The activities in a laboratory service, for example, include the establishment and maintenance of equipment, the supervision and judgment exercised by a pathologist or laboratory director, the training of technicians of many types, the procedures for doing hundreds of tests, the review of technical performance to assure accuracy, the issuance of reports, and the like. Certain laboratory examinations, moreover, are very complex and can be done only in highly technical centers, while others are simple and can be done in the most modest setup.

If the advantages of regional cooperation are to be evaluated, each of these many units of hospital service must be considered objectively. Measurements must be made in which cost is one dimension and patient need another. Under the latter, one must consider the frequency of need for a specific service and the importance of time. A corollary of time is distance and the feasibility of transportation.

These questions are familiar in other contexts, especially in the organization of industry. They are the bread-and-butter problems of students of production and industrial engineering. Are there secrets in American technology which have not been applied to the production and distribution of health services?

There is need to take a closer look at the organization of hospital services in geographic regions from the viewpoint of technical effectiveness. One must not overlook the patient, because his welfare must always remain in the center of the picture. One must likewise not lose sight of ideological realities in American culture. But research focused on the technical aspects of hospital regionalization is urgently needed to evaluate properly the advantages to be gained through cooperative efforts.

If clear-cut technical advantages to specific forms of teamwork among hospitals can be shown, half the battle will be won. To the extent that gains are demonstrable, the American mind usually finds ways of application. If more highly developed expressions of hospital regionalization can be shown to yield better hospital services at the same or lower costs than prevail in the United States today, we are bound to find ways of implementing these approaches which will be philosophically acceptable and consistent with our social values.

REFERENCES

(1) Smith, F. B.: Adjudication pursuant to hearing on the filing of the Associated Hospital Service of Philadelphia. Harrisburg, April 1958.

(2) Bugbee, G., and Pattulo, A.: A foundation views hospital problems. Report of the Hospital Advisory Committee of the W. K. Kellogg Foundation. Hospitals 32: 39–43, Apr. 1, 1958.

(3) Smillie, W. G., and Curran, J. A.: The unmet needs in medical care of rural people, State of Maine, 1956. Bethel, Maine, Bingham Associates Fund, 1957, pp. 1–7.

(4) Social Denmark. A survey of the Danish social legislation. (Translated into English by W. E. Calvert, 1947.) Copenhagen, Socialt Tidsskrift, 1945.

(5) Consultative Council on Medical and Allied Service, Great Britain: Interim report on the future provision of medical and allied services.

Parliament Command Paper 693. London, His Majesty's Stationery Office, 1920.
(6) Roemer, M. I.: Medical care in relation to public health. Geneva, World Health Organization, December 1956, pp. 89–97.
(7) Mott, F. D., and Roemer, M. I.: Rural health and medical care. New York, McGraw-Hill Book Co., 1948, 608 pp.
(8) Rosenfeld, L. S., and Makover, H. B.: The Rochester Regional Hospital Council. Cambridge, Mass., Commonwealth Fund, 1956.
(9) Abbe, L. M., and Baney, A. M.: The Nation's health facilities. Ten years of the Hill-Burton hospital and medical facilities program, 1946–1956. PHS Pub. No. 616. Washington, D.C., U.S. Government Printing Office, 1958, 181 pages.
(10) Bourke, J. J., and Wagner, H.: Regional council: Valuable aids in statewide planning. Hospitals 24: 65–68, March 1950.
(11) What are the facts about group purchasing? (Symposium.) Mod. Hosp. 88: 63–72, April 1957.
(12) Rosenfeld, L. S., Kramer, N., and Wadman, R.: Preliminary report on survey of regional organization of health services. Presented before the medical care section, American Public Health Association, Cleveland, Ohio, October 1952.
(13) American Hospital Association: Roster of hospital association officers. Chicago, October 1958.
(14) Morris, R. C.: Toward the full potential of hospital regionalization. Ithaca, N.Y., Cornell University, Graduate School of Business and Public Administration, Sloan Institute of Hospital Administration, June 1959. (Mimeographed.)
(15) Rickard, P., and Roemer, M. I.: Canada's first regional hospital council. Hospitals 31: 45–49, Sept. 16, 1957.
(16) Miners Memorial Hospital Association: [A series of three articles.] United Mine Workers' hospitals—part 1. Hospital chain [parts 2 and 3]. Architectural Forum 99: 132, August; 99: 150, September; 99: 132, November 1953.
(17) Ferrer, R. A.: Annual report for fiscal year 1957–58 of the Project for the Regionalization of Health and Welfare Services of the Bayamon Area. San Juan, P.R., Department of Health, Regional Office for Coordination and Research, August 29, 1958.

Career Opportunities

Columbia University School of Public Health and Administrative Medicine has announced an institute on new developments in psychiatry to be held November 18–19 in Syracuse, December 2–3 in Albany, and December 16–17 in New York City this year. Enrollment is open to personnel in national, State, and local health departments, in voluntary health agencies, and in family service organizations. Information may be obtained by writing to Program of Continuation Education in Public Health, 600 West 168th Street, New York 32, N.Y.

The University of Michigan and the University of Minnesota Schools of Public Health will hold an institute on prevention and management of handicapping conditions in infancy and childhood, November 16–20, 1959, in Ann Arbor, Mich., sponsored by Michigan and Minnesota State maternal and child health and crippled children's programs under a grant from the U.S. Children's Bureau. Seminars and discussions on extent and distribution, pathogenesis, prevention, recent advances in management, and program planning and evaluation are a part of the program. Eligibility is limited to staff members in States in Regions V and VI of the U.S. Department of Health, Education, and Welfare. Further information may be obtained from Dr. Donald C. Smith, associate professor of maternal and child health, University of Michigan School of Public Health, Ann Arbor, Mich., for Region V, and Dr. Helen M. Wallace, professor of maternal and child health, University of Minnesota School of Public Health, Minneapolis, Minn., for Region VI.

Meals-on-Wheels Projects

MEALS-ON-WHEELS, a practical answer to the problem of feeding care for the aged and handicapped, has been adopted as a health service by a number of communities. These projects recognize that malnutrition is one of the chief causes of illness in the elderly person. Improvement in diet often results in recovery from physical disability.

The meals-on-wheels project in Columbus, Ohio, began in 1956 with voluntary contributions collected by the Columbus Federation of Women's Clubs. At that time, an estimated 400 persons in the city more than 65 years of age could not prepare nourishing meals for themselves.

So that no one would be denied the service because of inability to pay the entire cost, a sliding scale based on income was applied to determine the amount to be paid by the client.

Three plans were used to determine what recipients were to pay for the service. In plan A, public assistance recipients pay up to 80 cents daily, and other needy persons pay some portion of the cost. Under plan B, nonindigent, elderly, or handicapped recipients pay $2 daily. In plan C, hospital patients returning to their homes who need the service temporarily until recovery pay $2 daily unless they qualify under plan A.

The menu was planned by a member of the Columbus Dietetic Association. The meals, prepared and packaged by a quality restaurant, consist of a dinner of meat, fish, or poultry, a vegetable, salad, bread, butter, dessert, and milk; a supper of a sandwich, milk, and fruit; and a snack of fruit or juices with a sweet roll or ready-to-eat cereal. Weekday deliveries are made by four taxicabs with separate routes.

From April 1957 to January 1958, 742 meals under the payment plan of $2 per day, and 1,922 meals under the payment plan of 80 cents per day were served to recipients.

Hospital patients were referred 1 day or more in advance by the physician or social service of the hospital. The recipients ranged from 45 to 94 years of age; 15 were over 70 years of age; and 9 were over 80.

Most of the recipients were receiving regular medical attention. Four persons were receiving regular services of a visiting nurse. Most lived alone in a single room. While a few had adequate cooking facilities, they lacked the physical ability to use them.

The staff donating voluntary services was composed of a full-time director; a bookkeeper (half day a week); three investigators, a collector, and two nutritionists (4 hours a week each); four drivers for Sunday and holiday delivery and two casework supervisors (3 hours a week each); and 12 committee workers for publicity (2 days a month).

The meals-on-wheels project in Rochester, N.Y., providing food for "shut-ins" over 45 years of age has been in operation for more than a year.

The project, begun April 16, 1958, is administered by the Visiting Nurse Service of Rochester and Monroe County on a contract basis for the bureau of chronic diseases and geriatrics of the New York State Department of Health. It is a 3-year pilot study of one type of community health service, domiciliary feeding of the aged, to enable them to live independently.

At the end of the project, a manual based on the study will be prepared to assist other communities in setting up similar projects. Part of the pilot plan is the evaluation of the service with respect to nutrition, cost of operation, administration, medical problems, satisfaction of community needs, and technical aspects of preparation, packaging, and delivery of food.

Within an hour at midday, 5 days a week, 5 private automobiles, each manned by 2 volunteers, deliver and serve food for 2 meals to approximately 8 to 10 clients, a total of 40–50 persons served daily. The meals, a hot dinner and a cold high-protein sandwich supper, are

prepared and packaged at the specially equipped kitchen which VNS added to its headquarters in the heart of Rochester. Menus are planned by the staff nutritionist of the Visiting Nurse Service, and special diets, such as low-sodium and diabetic, are provided on physicians' orders.

The charges range from 50 cents to $1.25 per day, with the "adjusted fee" scaled to income. Charges are payable in advance by the month on a signed agreement basis between the client and the association. It is a business-like, dignified arrangement, and appears to be acceptable to the clients.

The maximum number that can be served at the present time with the association's staff, equipment, and geographic and traffic limitations is about 50 persons. The project is generally working at capacity, although the number of clients varies. Because of basic requirements and effective screening prior to service by the public health nurse, the large number of applicants thins out to a small number of eligibles. The association has been able to care for all who are approved.

The first annual report shows that the clients numbered 143 and ranged in age from 45 to 96 years, with an average age of 76.5 years. There were 2½ times more women than men. Ten couples were served.

The number of days' service per client ranged from 1 to 253 days; the average was 58.2. All paid something more than 70 percent of the full fee. There were 91 regular diets and 52 special, on doctors' written prescriptions. Medical care was provided by private physicians to 115 of the 143. Relatives referred about 28 percent; the rest were referred by physicians, hospitals, social agencies, or the clients themselves.

The Rochester Visiting Nurse Service has played host to many visitors and observers, including public health workers attending a New York State health conference.

Diabetes Casefinding in the Virgin Islands

A diabetes casefinding campaign, combined with venereal disease testing, was conducted in the Virgin Islands in the spring of 1959 by the Islands' department of health assisted by the Public Health Service. Lasting from March through June, the islandwide screening program offered diabetes blood tests to an estimated 10,000 to 15,000 out of the total population of 24,000.

This was the first time mass screening for diabetes was done in the Islands of St. Croix, St. John, and St. Thomas. Besides discovering hitherto unknown diabetics and bringing them to treatment, the campaign will supply data on the prevalence of the disease in the Islands. These data are currently being processed.

Blood tests were offered all persons over 15 years of age, but special appeals were made to persons most likely to have diabetes, such as relatives of diabetics, parents of babies of large birth weight, the obese, and adults over 40 years old. Public cooperation was stimulated by newspaper stories, flyers, radio broadcasts, and, via sound trucks, talks on the disease and its disabling effects if untreated.

Screening was carried out at fairs and other public gathering places. Industrial workers were tested during working hours and health department workers made door-to-door home visits to accommodate those desiring the test. The Hewson Clinitron, designed to perform the Wilkerson-Heftmann blood sugar screening test, was used in the program. At capacity the machine can complete 120 tests per hour.