Appraisal of Medical Care Programs*

E. RICHARD WEINERMAN, M.D., M.P.H.

Visiting Associate Professor of Medical Economics, School of Public Health, University of California, Berkeley, Calif.

A MEASURE of the maturity of a social movement is the objectivity with which it can appraise itself. At present, the rapid and uneven growth and the uncoördinated nature of the medical care field reflect its adolescence. Only when sound criteria for self-evaluation are developed, and when uniform standards of service have been agreed upon, will this movement attain a truly adult status in the United States.

NEED FOR A MEDICAL CARE EVALUATION SCHEDULE

Despite the present lack of uniform appraisal standards, many individual studies of operating programs have provided valuable guides for the task ahead.[1] Such studies, however, have reflected the personal interests of the investigator and reveal a variety of techniques and criteria. The methods of study have not been designed for comparative evaluation of the overall field of medical care. A universal appraisal method is needed, in which the pertinent information concerning new plans can be organized and analyzed against standards which are quantitatively accurate and qualitatively sound.

Challenging examples are to be found in sister fields: the hospital standardization schedule of the American College of Surgeons, the medical school accreditation system of the American Medical Association, the *Evaluation Schedule* for community health programs produced by our own A.P.H.A.—all illustrate the advantage of standards for the study and improvement of health service.

Some efforts have been made to establish more general principles of organization and service for medical care programs.[2] These provide the basis for construction of a universally applicable appraisal system. The thorough study of factors affecting the *quality* of service in organized medical care programs, recently released by the A.P.H.A. Subcommittee on Medical Care,[3] can well serve as a guide in the design of qualitative standards.

EXPERIENCE AT THE UNIVERSITY OF CALIFORNIA

Preliminary efforts have been under way at the University of California School of Public Health to develop an appraisal technique which would satisfy the complex requirements of the medical care field. These arose initially in the attempt to provide graduate students with a uniform and helpful guide for their field studies of operating programs. This guide consisted of a series of questions designed to produce the most pertinent information, to suggest the major categories of adequacy, and to make possible a uniform approach to the various programs.

The field study guide was organized into sections which we felt would reflect the basic elements of any operating program. This classification is now serving as a framework for further efforts to construct a more comprehensive evaluation schedule. The sections include:

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1. Objectives of the program
2. "Vital statistics" of the area served and of the program itself
3. Policy control
4. Administrative structure and function
5. Financial aspects
6. Eligibility and coverage
7. Professional personnel and facilities
8. Services and benefits
9. Quality of medical care
10. General evaluation

Experience since the original formulation of this questionnaire has convinced us that separate sections reflecting rates of utilization of service and changing indices of morbidity and mortality under the program would also be essential.

The variety of operations to which the students applied this guide is reflected in the list of programs visited:

1. Crippled Children's Service of State Department of Public Health
2. San Francisco City and County Hospital
3. Agricultural Workers Health and Medical Association (Federal Farm Labor Program)
4. Southern Pacific Railroad Medical Plan
5. State Disability Insurance System
6. San Mateo County Department of Health and Welfare
7. Hospital Service of California (Blue Cross)
8. California Physicians' Service (Blue Shield)
9. Chronic Disease Service of State Department of Public Health
10. Permanente Health Plan
11. Palo Alto Medical Group

The experience of the students called attention both to the advantages and the inadequacies of such an elementary technique. The guide did make possible an organized and orderly study. It insured consideration of the significant aspects of the program, and suggested many of the pertinent interrelationships. It was particularly valuable in enabling the student to ascertain the facts concerning structure and quantity of operations. Most importantly, it made for seminar reports that were similar in organization and content, despite the wide diversity of plans studied.

However, this series of questions did not and could not serve as a real evaluation tool. Since no definitive standards were set, information could not be objectively weighted. The trivia were often as enthusiastically reported as the essence. Valid comparisons among the various plans were not really possible. Evaluation of function and of quality remained a matter of individual interpretation.

This experience has emphasized to us the difficulties inherent in any effort to evaluate medical service. The problem stems from the diversity of existing plans; the variations in objective, in method, and in philosophy. It is difficult to determine the *quality*—in contrast to the quantity—of a service as complex, delicate, and personal as medical care. The field has few of the elements of standardization that have been applied to hospitals, medical schools, or health departments. New and exceedingly flexible methods of evaluation are necessary.

PRINCIPLES OF APPRAISAL FOR MEDICAL CARE

On the basis of this experience, it was decided to attempt the construction of a more comprehensive evaluation schedule. Problems immediately arose as to the selection of proper standards and the design of a sound scoring system. Both, we are convinced, must be based upon the adequacy of the statistical records maintained by operating plans, and upon the ingenuity of the methods of analysis used in the appraisal. Routine statistical data will, of course, not now provide all the information required for the evaluation of programs. Special analyses of recorded data and sampling surveys will be necessary as supplements. As the appraisal method is standardized, however, record systems could be designed to provide more of the data required.

The *purposes* of appraisal efforts in medical care seem to be fourfold:

1. To enable directors of plans to review and assess their own operations in a constructive manner.
2. To permit critical comparisons between plans.
3. To estimate the degree to which a medical care plan meets the particular needs of its area.
4. To judge the current scope and design of the program in terms of long-range ideal standards for medical service.

Standards for measuring adequacy must at first be derived from a variety of sources. Past and current experience with the provision of medical care can provide many of the indices—such as average rates of utilization of services and proportionate costs for the different categories of care. Where satisfactory data are lacking, *a priori* standards will be necessary for such items as cost and frequency of health examinations. Application of statistical audits (as in the Windsor, Ontario,[4] and Maryland [1e] medical care programs) has indicated the value of using the average experiences of physicians and patients in the plan's own operation as base lines for the appraisal of individual practices. The operation of the medical care plan itself creates new conditions of need for—and utilization of—medical services, as in Saskatchewan [5] where the standard for hospital beds is rising from 4.5 to 7 or 8 per 1,000 population, as a result of the operation of a province-wide hospitalization insurance system.

Our tentative *criteria for appraisal* of medical care plans follow rather closely the outline of the students' guide. Quality of care is emphasized as the final test of adequacy. While many considerations enter into the analysis of each factor, I should like to stress here the role of statistical data.

APPAISAL CRITERIA FOR MEDICAL CARE

1. *Objectives and accomplishments* of a program to be related to *needs* of the area, in terms of:
   (a) Characteristics of the population and the region.
   (b) Supply and use of medical resources.
   (c) Indices of morbidity and mortality.

The stated objectives of the program must be consistent with its accomplishments and be relevant to the particular health needs of the area. What are the significant characteristics of the population and the region? How adequate is the supply and use of medical resources? Are the morbidity and mortality rates in the area reflected in the design of the plan?

Obviously, one cannot evaluate the degree to which local needs are being met by a plan without basic demographic data and vital statistics. Data on family size, occupation, income, population density, etc.—as well as age and sex—are all necessary to a proper assessment of local needs. Equally pertinent are patterns of disease and distribution of facilities in the area. Perhaps one item in the evaluation of an operating program should be the extent to which basic information about the community is already compiled and used by the administrative agency.

2. *Administrative structure* must promote:
   (a) Democratic control of policy.
   (b) Economy and efficiency of operation.
   (c) Quality of medical service.

The administrative structure of the plan must be evaluated in terms of the triad of democracy, efficiency, and quality of service. It has no other function.

Consumer representation on policy boards, decentralization of authority, adequate appeals machinery, etc., are usually considered relevant. However, the use of statistical audits in program control and the adaptability of records to self-appraisal and research, as well as to operations, are also to be considered in judging the administrative set-up.

3. *Financial design* must assure:
   (a) Stability and solvency.
   (b) Adjustment of costs to family incomes.

(c) Methods of payment to professional personnel which reconcile economic and scientific interests.

The financial design is next considered. Does it make for stability and solvency of operation? Are costs in line with family incomes? Do the methods of payment to physicians and hospitals reconcile, or cause conflict between, economic and scientific interests?

Only carefully designed statistical techniques will permit unbiased analysis of such matters as the effect of the fee-for-service method on volume of services rendered. Moreover, accurate cost-accounting is needed to break down expenditures for the different categories of service and thus to judge the success of the fiscal design in keeping the proper balance between expenditures for medical, hospital, and other services. The size of the reserve fund is pertinent.

4. *Conditions of eligibility* must:
   (a) Encourage participation by those most in need of service.
   (b) Promote prompt access to needed care.
   (c) Protect the personal dignity of the recipient.

The conditions of eligibility must encourage, rather than restrict, participation by those most in need of service. Do eligibility determinations interfere with prompt access to needed care? Do income investigations infringe upon the personal dignity of recipients of service? Yet eligibility must be considered with due regard for the actuarial stability of the operation.

Here, refined statistical methods are essential to the evaluation. Usually, groups much in need of health protection—such as the aged, the chronically ill, the migrant workers—are the very ones excluded. The evaluation schedule might well inquire how thoroughly operating plans have analyzed the costs of servicing the so-called "bad risk" groups, especially when risk can be spread broadly over the covered population.

5. *Population coverage* is evaluated according to:
   (a) Proportion of eligible persons in the area.
   (b) Proportion of participants among those eligible.
   (c) The characteristics of the covered group compared with the general population.

The population coverage of the plan is evaluated in terms of proportions rather than numbers. What is the proportion of eligible persons in the area? What is the proportion of participants among those eligible? Finally, what are the characteristics of the covered group compared with the general population?

In other words, evaluation of enrollment must consider how much of a "dent" the plan really makes in the area of operation, and what section of the community it serves. Statistical analysis of membership turnover is an essential in the administration as well as in the appraisal of a program.

6. *Professional personnel and facilities* are judged by:
   (a) Accepted standards of competence.
   (b) Ratios of providers to consumers of service.
   (c) Degree of coördination of professional activities.

Participating personnel and facilities are evaluated by reference to accepted professional standards of competence, the supply of providers in relation to consumers of service, and the way in which doctors, hospitals, and the like are organized and interrelated.

Important here, for example, are such factors as the qualifications for specialty rating adopted by the plan, or the extent of its use of visiting nurses and auxiliary technical personnel. The supply of doctors, hospital beds, and the like is judged against statistical standards, such as those recently formulated by the Health Insurance Plan of Greater New York.[6] The age distribution of doctors is a highly significant factor. The method of medical practice—such as group practice in health centers—is pertinent in

evaluating the adequacy of the supply. Methods of referral to specialists, and general practitioner follow-up are important. The rate of turnover of physicians is another key to intelligent appraisal.

7. *The benefit structure* is analyzed in terms of:
   (a) Scope and content of the services provided.
   (b) Rates of utilization of the services.
   (c) Relation of costs to the benefits schedule.

The benefit structure of the plan is analyzed in terms of the scope, utilization, and costs of services provided. What services are provided? How extensively are they utilized? What do they cost?

For proper analysis of scope of benefits in a plan, the full spectrum of medical care *needed* by a family must be compared with the services actually provided. Which, for example, is more important to the family in the long run: protection against catastrophic surgical costs or the early diagnostic and therapeutic care made possible through the provision of home and office services? What part of the spectrum is covered, and what are the priority services? The percentage of persons receiving *any* service is, for example, a gross index of availability of benefits.

Rates of utilization of various services can serve as standards for appraising the content of the benefit structure. Examples include such items as physicians' calls per capita and per case, or mean length of hospital stay. Fluoroscopy rates, the number of post-operative visits per surgical case, the ratio of annual health check-ups to eligible persons—all reflect important aspects of the benefit structure.

Finally, benefits must be analyzed in terms of the ability of families to pay the costs. On this basis, for example, a typical hospital service plan provides a benefit which constitutes only *one-fifth* of the total medical service needed by the average family. Its $40 annual premium, however, represents over *one-third* of the average family's medical expenditures in a year.[7] This type of analysis requires sound data on the breakdown of the medical dollar and on consumer expenditures. Both depend upon adequate statistical data from the operating programs.

8. *The quality of medical care* depends (in addition to the foregoing) on:
   (a) Methods of organizing the medical resources.
   (b) Continuity of care.
   (c) Standards of diagnosis and treatment.
   (d) Extent of preventive and rehabilitative care.
   (e) Nature of patient-physician relationships.
   (f) Encouragement of education and research.

The quality of medical care in the program depends upon many factors in addition to all of the foregoing.[3] How are doctors and hospitals organized for service? Is there a continuum of care for the patient from diagnosis through convalescence? Are clinical standards maintained at a high level? To what extent are preventive and rehabilitative services provided? Are economic considerations ruled out of the physician-patient relationship? Is postgraduate education and research financed in the plan?

Even qualitative appraisal depends upon quantitative information. The caliber of clinical practices may be evaluated, for example, by analysis of rates for such key diagnostic and therapeutic procedures as rectal examinations of adult patients, blood chemistry tests, gall bladder and uterus operations, microscopic examination of tissues removed by surgery, rehabilitative services for static disabilities, etc. The quality of the service provided is reflected by such statistical indices.

Makover, at the Health Insurance Plan of Greater New York, is experimenting with the establishment of essential items in the clinical work-up of

different kinds of cases (i.e., cancer, digestive disorders, pediatric cases, and health examinations). Case records are then checked against the list of key items. Case records, in general, are invaluable in the appraisal of overall standards of clinical work.[8]

CONCLUSION

By way of summary, *the overall evaluation of the program* reflects:

1. The extent to which all needed services are provided within the range of ability of families to pay.
2. The quality of these services.
3. The freedom of experimentation and change that is permitted.

On the basis of such criteria, a successful appraisal method should be feasible. We, at the University of California, plan to continue our preliminary efforts and to carry on initial field tests during the coming year. The potentialities of the method depend to a great extent upon the statistical data available from operating medical care plans and upon the methods of analysis adopted in the evaluation. It is hoped that an expert group of medical care specialists—clinicians, statisticians, and administrators—can be formed to carry on a cooperative project in the development of a uniformly acceptable evaluation schedule.

REFERENCES

1. Examples of careful studies of operating medical care plans include:
   a. Anderson, O. W. *Administration of Medical Care,* Research Series No. 2, Bureau of Public Health Economics, School of Public Health, University of Michigan, 1947. (Washington State "Senior Citizens" Program)
   b. Reed, L. S. *Blue Cross and Medical Service Plans,* U. S. Public Health Service, 1947.
   c. Klem, M. C., Hollingsworth, H., and Miser, Z. A. *Medical and Hospital Services Provided Under Prepayment Arrangements,* Social Security Administration Bureau of Research and Statistics, Memorandum No. 69, Federal Security Agency, 1948. (Trinity Hospital Plan, Little Rock, Arkansas)
   d. Sinai, N., and Anderson, O. W. *E.M.I.C.: A Study of Administrative Experience,* Research Series No. 3, Bureau of Public Health Economics, School of Public Health, University of Michigan, 1948.
   e. Kline, H. M., Terris, M., Hapney, C., and Kramer, N. A. *The Maryland Medical Care Program,* Subcommittee on Medical Care, A.P.H.A., 1948.
2. Valuable discussions of appraisal standards include:
   a. Lee, R. I., and Jones, L. W. *The Fundamentals of Good Medical Care,* C. C. M. C. Publication 22, University of Chicago Press, 1933.
   b. *Report of the Hospital Service Study Commission,* presented to the 24th Legislature, Territory of Hawaii, 1947, pp. 3–14.
   c. Clark, D. A., and Reed, L. S. Appraising Public Medical Services, *A.J.P.H.* 31:421–430 (May), 1941.
   d. Clark, D. A. "Criteria for the Evaluation of Prepayment Medical Care Plans" in Proceedings of the National Health Assembly, May, 1948, Washington, D. C. (Released by the Federal Security Agency).
   e. Goldmann, Franz. Adequacy of Medical Care, *Yale J. Biol. & Med.* 19:681–688 (Mar.), 1947.
   ———, *Voluntary Medical Care Insurance in the United States,* Columbia University Press, 1948, pp. 190–191.
   f. Rorem, C. R. *Blue Cross Hospital Service Plans,* Hospital Service Plan Commission, American Hospital Association, 1944. pp. 20–26, 83–88.
   g. International Labor Conference. *Social Security: Principles and Problems Arising Out of the War,* I. L. O., Montreal, 1944, pp. 57–115.
   h. Social Security Board. *Medical Care Insurance,* U. S. Senate Committee Print 5, Committee on Education and Labor, 79th Congress, 2nd Session, Government Printing Office, 1946.
   i. American Public Health Association. Content and Administration of a Medical Care Program. *A.J.P.H.* 34:1217–1256 (Dec.), 1944.
   j. American Medical Association. *Basic Principles of Medical Economics,* The Association, 1941.
   k. American Public Welfare Association. *Organization and Administration of Tax-Supported Medical Care,* The Association, 1944.
   l. Health Program Conference. *Principles of a Nation-Wide Health Program,* Committee on Research in Medical Economics, New York, 1944.
3. Subcommittee on Medical Care, American Public Health Association. The Quality of Medical Care in a National Health Program. *A.J.P.H.* 39:898–924 (July), 1949.
4. Sinai, Nathan, Hall, M. F., and Holmes, R. E. *Medical Relief Administration,* Essex County Medical Economic Research. Windsor, Ontario, 1939, pp. 22–47.
5. Mott, Frederick D. Hospital Services in Saskatchewan. *A.J.P.H.* 37:1539–1544 (Dec.), 1947.
6. Rothenberg, Robert E., Pickard, Karl, and Rothenberg, Joel E. *Group Medicine and Health Insurance in Action,* New York: Crown Publishers, 1949, pp. 73–102.
7. Weinerman, E. R. The Problems of Medical Care: A Review, *Bull. California Conference for Social Welfare,* Aug., 1949.
8. Makover, Henry: Personal Communication.