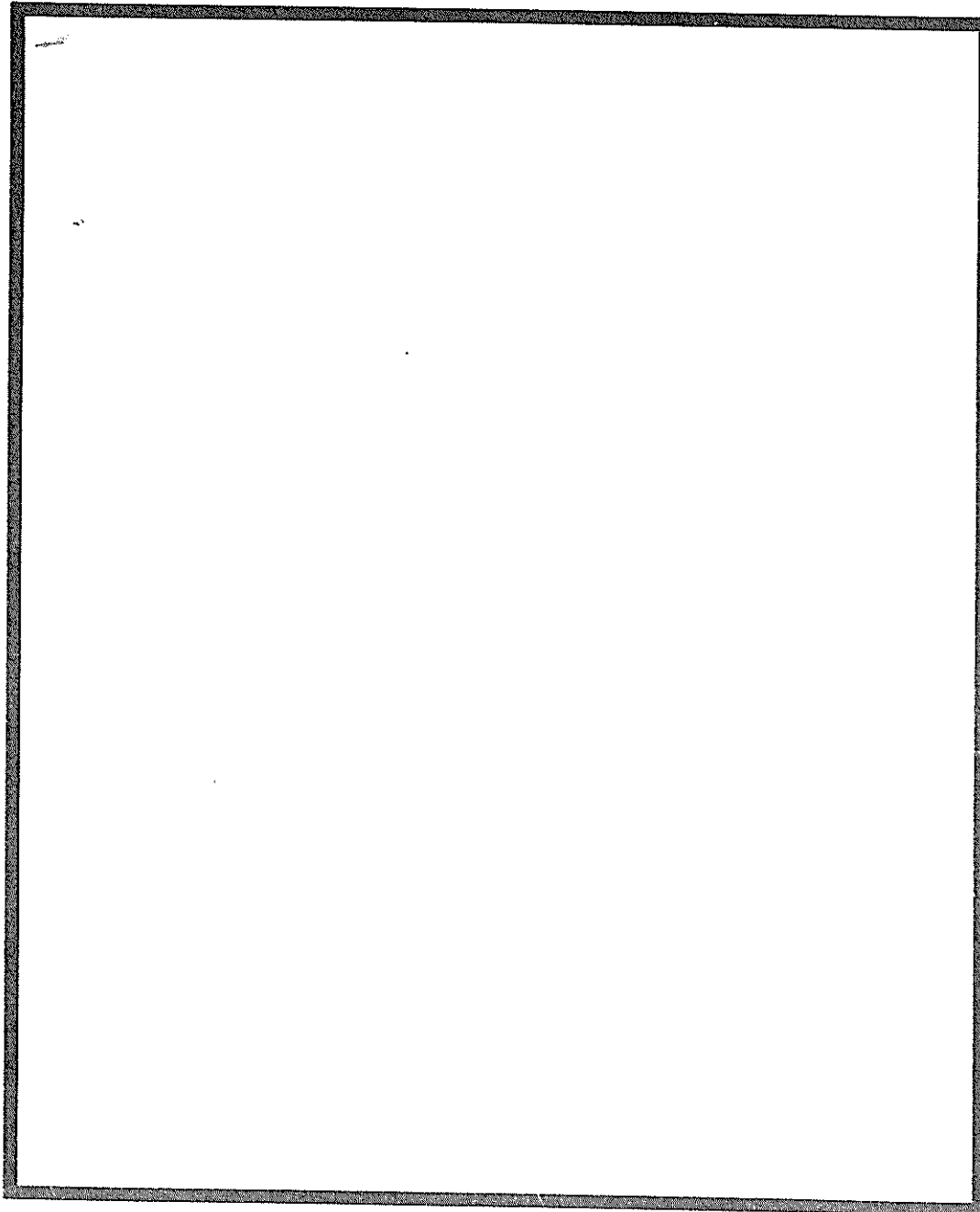


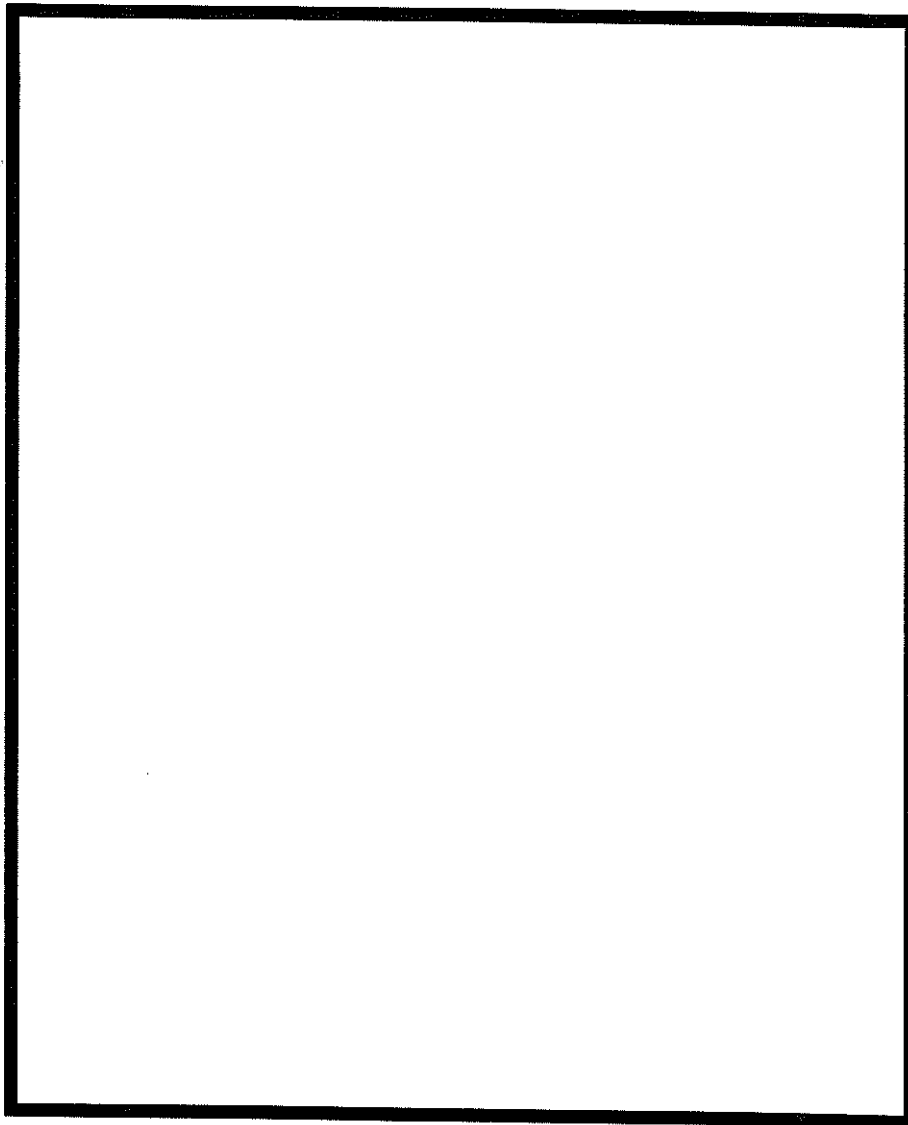
The Hospital's Role in Assessing the Quality of Medical Care



Proceedings of the Fifteenth Annual Symposium on Hospital Affairs
May 1973

Conducted by the Graduate Program in Hospital Administration and Center for Health
Administration Studies, Graduate School of Business, University of Chicago

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Additional copies of this report may be obtained by writing to the Graduate Program in Hospital Administration of the University of Chicago.

Editor

ELAINE SCHEYE

Editorial Assistant

EVELYN FRIEDMAN

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DAVID MILLER

A. WENDELL MUSSER, M.D.

RONALD ANDERSEN, PH.D.

Center for Health Administration Studies, University of Chicago

CARL I. BERGKVIST

Bryn Mawr Hospital, Bryn Mawr, Pennsylvania

ROSEMARY LOVE

Martin Luther King Neighborhood Health Center, Chicago

KENNETH PRAEGER, M.D.

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PROLOGUE

The Hospital's Role in Assessing the Quality of Medical Care

The purpose of the Annual Symposium is to bring together administrators, faculty, planners and students to define and analyze a particular issue which is apropos, timely, and important to the present state of the delivery of health services.

Increasingly, the consumer of health services is demanding accountability for the cost and quality of care rendered. This year's subject, as has been true in the past, is somewhat controversial, hence eminently suited to on a university campus. "The Hospital's Role in Assessing the Quality of Medical Care" deals with accountability in the area of medical services which are rendered. The topic continues the theme of accountability introduced at last year's Symposium where the focus was on "Public Control and Hospital Operations." In view of the close interrelationships between cost control and quality control, such continuity seems most appropriate.

Questions raised at the Symposium were many: What is quality? Can quality be measured? If so, by what criteria? Is any one method best suited for quality assessment, or is it a combination of many methods? Participants sought to determine if quality assessment and control are strictly medical issues to be dealt with solely by the physician. Or, are quality assessment and control matters of integrating clinical and administrative decision-making?

The papers and discussion reported in these proceedings will have continuing importance for administrators, physicians, planners and other health officials with responsibilities to the public for the quality of care rendered. PSRO legislation (P.L. 92-603) and related forces guarantee that such responsibilities will continue to grow in the future.

The Fifteenth Annual Symposium on Hospital Affairs conducted by the Center for Health Administration Studies, Graduate School of Business, University of Chicago, was held at the Center for Continuing Education on May 4 and 5, 1973. Chairman for this Symposium was Stephen M. Shortell, Ph.D., Acting Director of the Graduate Program in Hospital Administration; Assistant Professor for Health Administration Studies, Graduate School of Business, University of Chicago.

These symposia explore current problems in the health field looking at present trends and anticipating the future needs. Because the subject of this Symposium, "The Hospital's Role in Assessing the Quality of Medical Care," was one of such concern and importance, and, because of the interest demonstrated by those attending, the transcripts and papers presented have been published for distribution.

Introductory Remarks

STEPHEN M. SHORTELL, Ph.D.

CHAIRMAN SHORTELL: In many respects our symposium this year can be viewed as a continuation or at least extension of our symposium last year. As many of you will recall, the title of our symposium last year was "Public Control and Hospital Operations" in which we focused on the increasing demand on the hospital for greater accountability in the financial arena. The title of this year's symposium "The Hospital's Role in Assessing the Quality of Medical Care" continues the theme of accountability but probes beyond the issue of cost control to quality control of the services rendered. But, as we will see, the issues of cost control and quality control are closely interrelated. And, so, whether it was by design or chance that we planned these two symposiums back to back (and I'm pretty sure it was by chance), the outcome or coincidence seems most "appropriate."

By way of introduction to our subject I'd like to touch briefly on the historical context of the hospital's role in quality assessment; highlight some of the contemporary forces shaping current policies, in particular, the relationship between cost control and quality control; introduce some fundamental concepts which our program speakers and discussants will be elaborating on throughout the next day and a half; and suggest that quality control is in the most fundamental sense an administrative process; and discuss some implications of this process.

At first glance one might expect hospitals to have always been interested in quality control and that it would be a logical corollary of their day-to-day operation. That this has not always been true is indicated by the story of Dr. Ernest Amory Codman. Dr. Codman was affiliated with the Massachusetts General Hospital and Harvard Medical School in the early 1900's, and was as concerned with the hospital's role in quality of care as any of us in the room today. There is one significant difference, however, in that Dr. Codman was viewed unanimously as

an eccentric! He had a running feud with several members of the medical school over their policy of promoting on the basis of seniority rather than demonstrated competence and for failure to evaluate the end results of the quality of care rendered. Writing in his book *A Study in Hospital Efficiency*, he notes:

... I am called eccentric for saying in public that hospitals if they wish to be sure of improvement:

1. must find out what their results are.
2. must analyze their results to find their strong and weak points.
3. must compare their results with those of other hospitals.
4. must care for what cases they can care for well, and avoid attempting to care for cases which they are not qualified to care for well.
5. must assign the cases to members of the staff (for treatment) for better reasons than seniority, the calendar, or temporary convenience.
6. must welcome publicity not only for their success but for their errors so that the public may give them their help when it is needed.

He ended by concluding that: "Such opinions will not be eccentric a few years hence." (Ernest A. Codman, M.D., *A Study in Hospital Efficiency*, privately published, p. 187.)

It seems to me that on one or two points Dr. Codman might still be considered somewhat of an eccentric even today; but, in general, his views would fall well within the mainstream of current public policy debate. There's really little need to go over the current forces shaping the increased interest in quality control since they are familiar to all of us (the impact of the Darling decision, the demand for increased accountability, etc.), but I do feel it is important that we recognize the close interrelationship between quality control and cost control. In fact, Public Law 92-603 which establishes the Professional Standards Review Organizations (PSRO's) is quite clear in this regard. Quoting from the bill made in a report of the Senate Finance Committee:

A PSRO would have the responsibility of determining—for purposes of Medicare and Medicaid reimburse-

ment—whether care and services provided were: first, *medically necessary*, and second, provided in accordance with professional standards. Additionally, the PSRO where medically appropriate would encourage the attending physician to utilize less costly alternative sites and modes of treatment. The PSRO would not be involved with questions concerning the reasonableness of charges or costs or methods of payment nor would it be concerned with internal questions relating to matters of managerial efficiency in hospitals or nursing homes *except* to the extent that such questions substantially affect utilization. (September 26, 1972, Report of the Senate Finance Committee.)

It seems quite clear that quality assessment, *per se*, is not the primary purpose of the legislation but rather the elimination of “unnecessary” services; and in regard to managerial efficiency and utilization, it would not seem too difficult to relate everything which a hospital and its medical staff does to some issue of utilization.

In anticipation of PSRO legislation the National Center for Health Services Research and Development has funded the EMCRO program (Experimental Medical Care Review Organizations) which established 10 organizations (all state or county medical society based) for purposes of developing and evaluating methods of conducting areawide and statewide review of physicians’ services. While their purpose has, indeed, been to examine the quality of medical care delivered (both inside and outside the hospital) by forming standards for diagnosis, treatment and case management, a recent report is quite candid in admitting:

Although the primary purpose of EMCRO is quality assessment, cost containment remains the immediate chief purpose of existing review programs. Medical care review can reduce the total cost of medical care to the community by eliminating unnecessary and inappropriate care and procedures, and by reducing morbidity which in turn will reduce future use of services. On the other hand, medical care review may lead to an increase in expenditures to the extent that it identifies gaps in care and inappropriate “underutilization.” The net effect of quality assurance on total cost of care in the community will, therefore, depend on the balance among these effects. In the short run, medical care review predictably reduces expenditures primarily through reducing hospital use. The long run effects cannot be predicted. (Sanazaro, P., *et al.*, “Research and Development in Quality Assurance,” *New England Journal of Medicine* 287:1130 [November 30, 1972].)

I think that these two statements, one from the PSRO legislation itself and the other by experts associated with experimental review bodies, are sufficient to indicate the close inter-relationship between cost control and quality control.

While it is important to recognize the cost-quality control relationships the essence of our program today and tomorrow is on quality assessment. Traditionally three general approaches to the problem have been taken; structure, process and outcome. Since our speakers will be discussing these with great depth, I’m merely going to introduce the basic notions here. In general, the structure approach to quality assessment emphasizes personnel and facility ratios such as number of physicians per capita, number of hospital beds per capita, and various standards of accreditation and licensure such as those established by the Joint Commission on Accreditation of Hospitals, state health departments, licensing bodies and so forth. Thus, the structure approach generally focuses on the inputs to the medical care delivery process and essentially assumes that “the more you have, the better.” The process approach attempts to assess exactly what is done to the patient by examining the performance of physicians and allied health professionals. Generally, the focus here is on establishing criteria for diagnosis and treatment and then checking to see (often by use of the medical record) whether the criteria are met. The outcome or end result approach (of which our friend Dr. Codman was an early advocate) focuses on the actual health status of the patient in terms of the extent of his recovery from illness, ability to function in his usual role and so forth. The pros and cons of each approach and their relationships to one another will be taken up by our speakers.

While discussion of technical approaches to measuring the quality of medical care is absolutely essential to a meeting of this sort, I hope that we don’t become too mired in some of the technical or methodological details to overlook the fact that we are also looking at an administrative process. We are essentially talking about a feedback control mechanism which will enable the administrator to evaluate the performance of his hospital in regard to goal attainment and will serve as input to subsequent decisions involving the allocation of resources. Just as the budget is the cornerstone of sound financial control for the organization, the medical record (even with all its shortcomings), medical audit programs and other types of evaluation methodologies are the cornerstones of a hospital’s quality control program. It seems to me, we need to consider seriously

the various ways in which a quality control program may be implemented in terms of both medical staff organization and establishing criteria for evaluating the relative payoff of different types of quality assessment programs. In this regard, I would like to raise a number of questions to be considered throughout the symposium.

For example: (1) Are current medical staff organization structures conducive to quality of care assessment? (2) Is assessment better carried out on a departmental basis or multispecialty committee basis or, perhaps, some combination of the two? For example, how should a hospital evaluate the quality of emergency room or outpatient department care which typically cuts across many specialties? (3) What criteria of efficiency should be established to evaluate the quality assessment program itself? In addition to physician time and effort, quality assessment requires other organizational resources such as clerical support and the involvement of nursing and related health manpower. Relevant questions here are:

1. Do we review all records or just a sample?
2. If we decide to sample on what basis do we do so? Do we sample from all diagnostic categories or only a selected few? On what basis do we decide? Do we se-

lect on the basis of frequency of admission, cost of care, potential impact for reducing mortality and morbidity, potential for prevention or what?

3. What criteria of effectiveness should be established? Do we look at improvement in physician performance and, if so, how do we measure it? Do we look at the impact on disease—specific mortality or morbidity rates?
4. And a related question is, *what do we do* when we find the quality of performance does not measure up to standards?

In brief, like any other hospital program, the quality assessment program itself should be evaluated and the administrator in conjunction with his medical staff should establish the criteria in advance. I'm sure Dr. Musser and Mr. Miller will be addressing themselves to some of these issues.

I've said little this morning about what quality of care is; neither in its technical or non-technical dimensions, nor how it might be specifically measured (the notions of structure, process, and outcome are simply general approaches). I think we're extremely fortunate in having an expert group of speakers who will be addressing these issues and, hopefully, with the panel discussion and your questions we can relate these basic issues to some of the considerations that have been outlined here.

The Importance of Obtaining High Quality Medical Care

OSLER PETERSON, M.D.

CHAIRMAN SHORTELL: Our first speaker this morning is known to many of us. Dr. Osler Peterson is Professor of Preventive Medicine at the Harvard Medical School and School of Public Health. Dr. Peterson received his M.D. degree from the University of Minnesota. He has also taught on the faculty of the University of North Carolina and has been affiliated as the Assistant Director for Medical Education and Public Health at the Rockefeller Foundation in New York. He has done considerable empirical work on the issue of quality of medical care. His study of general practitioners in North Carolina in the 1950's remains a classic. It continues to be frequently cited as a baseline source, which, I think either indicates how little progress we have really made in the last 15 to 20 years or says something about how far ahead Dr. Peterson was in his work: perhaps, a little of both.

Dr. Peterson's subject is "The Importance of Obtaining High Quality Medical Care."

DR. OSLER PETERSON: Thank you very much, Dr. Shortell.

I guess my duties today are a little bit like an evangelical preacher. My responsibility is to prepare you to crawl on your hands and knees down the sawdust trail to accept salvation. Salvation, in this instance, is acceptance of the importance of the quality of medical care.

I am a little bit upset at speaking with all this surrounding electronic equipment in these days, and I keep wondering if that attractive young man from Washington, who says he is an expert on medical care, may not really be here on quite another mission.

We had a meeting—I think it was about three weeks ago on a Saturday morning—during which we discussed coronary by-pass surgery. We devoted about three and one-half or four hours to the subject. We concluded with a discussion of the ethics of by-pass surgery, with particular attention to our subject for that morning which was the possibility of doing a ran-

domized clinical trial or experiment on coronary by-pass surgery. We really got tied up in the ethical problems. It was a very tight knot. We started out simply enough, asking: When does a patient give informed consent? A second question immediately arose: Can the patient's own doctor ever get informed consent? There was general agreement that this was not possible. Can another doctor who is not involved in the randomized clinical trial obtain an informed consent? Can the patient really understand the issues? Can he, being ill, properly weigh the questions of risks and of benefits? Can a sick man in the hospital make an unbiased decision?

Finally, we got down to the kind of awkward questions that can be raised on these occasions. Would the experimenter himself enter a randomized clinical trial in which he would have his chest entered and his heart opened? Would he put a member of his family in a trial? Would he recommend that this private patient enter a trial? This touches on his relations with his private patients and is a very hard question to answer.

This finally brought us to the most awkward question of them all—the fact that it is usually the poor patient on the hospital ward that has been randomized during a clinical trial. By the end of the morning, we were all rather depressed about the whole thing. Although we had gathered to actually discuss these issues and to help plan a randomized clinical trial, we left with the feeling that, "Good God, it is almost impossible to do ethically."

We also raised questions, of course, about when to stop, about whether you can ask a patient to mortgage his future potential longevity for the gain in knowledge that interests the experimenter. This is a little bit like what communism which, with its high rate of reinvestment, asks its citizens to forego consumption so that their children will have a world of plenty to live in. Quite obviously, the communist model is not very popular with the people who have to live in it. The same may be true of experiments.

The curious aspect of the whole business is that we are so concerned with questions of ethics of experimentation, we give little consideration to the ethics of quality of care. There are differences in the two situations and these are important, especially when an investigator wants to do a clinical experiment. It is not the patient's initiative. The patient, on the other hand, when consulting a doctor presumably makes an intelligent choice, in the Adam Smith sense. He decides that Dr. X is perhaps cheaper, is better, or he likes him better. For some reason or other, he prefers Dr. X to all other doctors. So he consults Dr. X. It is informed choice in the sense that the patient has acted on some preference.

If we extend the situation to other circumstances, such as when a doctor refers a patient, I wonder if we may not begin to confront ethical problems that we have never faced in patient care. Can a physician ethically refer a patient to Hospital A for treatment if he knows that other hospitals have better facilities, more experience, and possibly obtain better results.

Figure 1 shows an example of the type of results I have in mind. This figure was taken from a study done by Drs. Graham and Paloucek who are based at the Roswell Park Memorial Institute, a specialized cancer hospital in Buffalo, New York. The figure shows survival curves for all women treated in Upstate New York hospitals for cancer of the cervix during 1949.

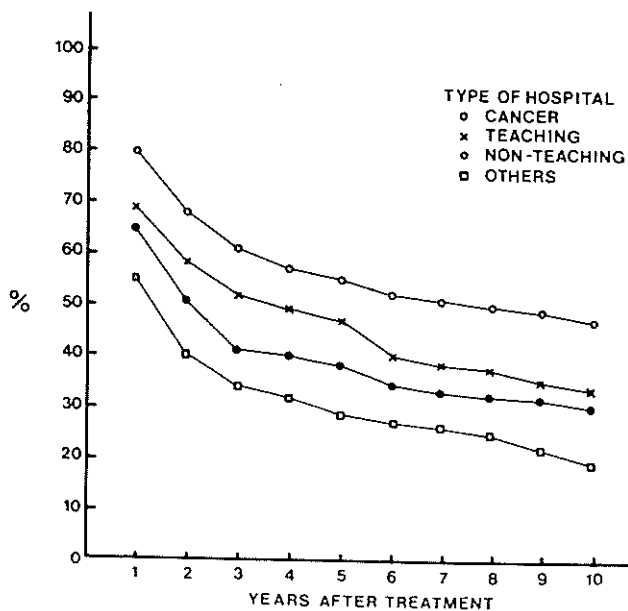


FIGURE 1

The survival of patients who were treated in a specialized cancer hospital, which is obviously Roswell Park, is shown in the top line. The second curve represents patients who were treated in the teaching hospitals of Upstate New York (Albany, Buffalo, etc.). The third line shows the group of patients treated in hospitals of cities with medical schools (Syracuse, Albany, Rochester, etc.). Finally, the bottom curve shows the survival of all the patients treated in hospitals outside of these four major metropolitan areas in Upstate New York.

The treatment of cancer of the cervix is probably determined as much by the patient's disease stage at the beginning of treatment as it is by any treatment given, so Drs. Graham and Paloucek recorded the stage of the cancer at start of treatment. Roswell Park received the worst selection of patients—that is, more patients with cancer of the cervix advanced beyond the earliest stage, or Stage I. The hospitals outside the major Upstate cities had the best selection of patients; that is, the largest percentage of patients with Stage I cancer of the cervix. This adverse selection by the large referral hospitals was quite consistent. The teaching hospitals had the next to the worst selection.

Another variable of importance to the different end results shown in this figure is the volume of patients. Roswell Park had an average of over 100 patients a year. The teaching hospitals averaged about 20. The non-teaching hospitals averaged about three to five patients a year. There is one other important difference: In addition to its large patient load, Roswell Park had a comprehensive cancer unit, staffed by experienced gynecologists, radiation physicists, technicians, and equipped with a full range of treatment modalities. The doctor who treated three patients a year, on average, often had a single source of radiation, no physicist support and few specialized technicians. In other words, we see that the inputs that Dr. Shortell talked about seemed to result in different kinds of outputs.

If a patient has these different kinds of care available to him with different probabilities of surviving or not surviving the disease in question, what ethical problems are raised for a doctor who refers a patient for treatment of cancer of the cervix or for the institution with poorer treatment results?

Whatever they are, we have not faced them, but we will have to in the future. Quite obvi-

ously, the population is turning more and more to the courts for redress in situations dealing with the quality of life when they cannot be dealt with in other ways. Professor William Curran of the Harvard School of Public Health, who writes extensively about medico-legal matters, points out that patient rights to quality of care are constantly being expanded. Dr. Shortell also referred to this. These rights are, on the one hand, being expanded and, on the other hand, they are being constrained by courts and legislatures. It seems likely that over the long haul they are going to be greatly expanded through the courts, if not by other means.

Dr. Shortell said that defining quality of care is an awesome question, but I am willing to try. Quality of care is the wise and skillful application of clinical science. The best of clinical science at any particular time is built upon a series of studies that define the best way to do something clinically. A good example is provided by heart surgery. When it began, the results were strikingly bad. With experience, the results improved. It was discovered that if things were done this way, or if this procedure was added, patients were more likely to survive and benefit from heart surgery. This kind of empirical and scientific process ultimately resulted in what became a rather rigid protocol in preparation for and performing each operation.

I don't know whether the long-term survival of heart patients is very good or not, because surgeons are not very good statisticians, and the sort of stuff they publish is very hard to decipher. Nevertheless, it has been found that in heart surgery—I think this is well established—you have to have a very well-trained team to assure patient survival. It is like the Roswell Park's well-practiced team, which produced better results. We know that the cardiac surgery team has to perform a certain number of operations per week to keep in practice. Lacking enough practice, the mortality tends to rise. These are examples of quality of care or the skillful application of clinical science previously qualified as "skillful and wise." If an enthusiastic clinician were willing to transplant kidneys into patients who are dying of other diseases, this obviously is not wise or skillful application of clinical science. The efforts of interns to assure that their dying patients are in electrolyte balance are probably made to forestall any possible criticism from service chiefs. This is not good quality of care, but rather a caricature of quality.

IMPORTANCE OF OBTAINING HIGH QUALITY MEDICAL CARE

TABLE I

MORTALITY FOLLOWING AMPUTATION—1860-1869 (SIMPSON)

<u>Hospital Size</u>		<u>Thigh</u>	<u>Leg</u>	<u>Arm</u>	<u>Forearm</u>
201-300 beds (7 hospitals)	n %	298 35.9	261 26.4	138 29.4	106 10.3
101-290 beds (20 hospitals)	n %	431 30.4	483 23.4	239 20.5	217 7.8
26-100 beds (30 provincial hospitals)	n %	241 24.4	266 18.0	133 15.0	121 5.8
4-25 beds (17 hospitals)	n %	34 20.6	55 14.5	27 7.4	27 11.1

My next table, which deals with a quality of medical care measurement in 1869, shows that our preoccupation with quality has had a long history (Table I). Dr. John Simpson, better known for his work on anesthesia, showed that amputation of the limbs was considerably safer, as can be seen, in small hospitals, than in large hospitals. If one amputated at the thigh, only one in five patients died, in a small hospital. If a thigh level amputation were done in a large hospital, about one-third of the patients died, and so on. Simpson was a good statistician for his time. He compared death rates by limb and level of amputation; apparently he understood the need to stratify patients so that patients with similar risks were being compared. It is quite a good study of quality of care.

It is rather interesting that at the time Simpson published this, he was strongly attacked in the European medical literature. It was said that, obviously, this could not be right. Everyone knew that large hospitals were better than small hospitals. The differences were due to infection rates which were less severe in smaller institutions. While most of the examples I am going to show today will show that larger hospitals tend to provide better care than smaller hospitals, this is not an invariable result. This is what studies tend to demonstrate because, in general, larger hospitals have more staff, better organization and better administration than smaller ones do. Among the New England hospitals, which I know quite well, I can think of small hospitals that provide medical care quality as good as any. I would be as willingly treated in some of them as in the large and famous institutions such as the University of Chicago Clinics, the Massachusetts General Hospital, and the like.

TABLE II

NEONATAL MORTALITY IN HOSPITALS WITH 500 OR MORE DELIVERIES ANNUALLY BY OBSTETRICS AND PEDIATRICS RESIDENCIES. NEW YORK STATE EXCLUSIVE OF NEW YORK CITY AND ITS METROPOLITAN AREA, 1950-1954

Type of Hospital	No.	Hospital Rate*
500 or more deliveries annually	78	17.4
1000 or more deliveries annually	43	17.2
Approved residencies for obstetrics & pediatrics	9	16.0
Approved residencies for obstetrics only	9	17.4
No approved residencies for obstetrics or pediatrics	25	17.6
500-999 deliveries annually (no approved residencies for obstetrics or pediatrics)	35	18.3

Adjusted to total live birth distribution by birth weight in New York exclusive of New York City, 1945-1949.

A.M.A. approval as of Sept. 1, 1953.

The next table (Table II) is taken from a paper by Dr. Alfred Yankauer; it demonstrates the neonatal mortality rates in hospitals of Upstate New York. The overall rate is 17.4 per thousand deliveries. Dr. Yankauer is a very careful research worker and has therefore standardized rates by birth weight adjusted for differences, this being one of the major variables associated with risk of dying at birth. In the hospitals with 500 to 900 births per year, the neonatal mortality is a little over 18 per 1,000 live births. In the larger hospitals with 1,000 or more deliveries annually, the rate is 17.2. This difference is significant.

Next, it can be seen that there is an association between the extent of teaching responsibility and death rates. This is not necessarily a cause and effect relationship; it may be that the service qualities that attract house officers are the qualities that produce the better survivals. In general, when a hospital supports residencies in obstetrics and pediatrics, it probably has considerably more administration, both general and medical, and its administration appears to be more effective, as shown by neonatal mortality rates that are quite low.

Hospitals with either an obstetric or a pediatric residency do not seem to be so effective. The size and complexity of hospitals thus seem to have some prognostic significance with respect to the outcome of care.

The next example deals with a group practice effect (Table III). This well-known study was performed by Drs. Shapiro, Densen *et al.* It involved a comparison of perinatal mortality rates among babies born to mothers who received their care in HIP or, under other circumstances, in New York City. The "other circumstances" in New York include care by certified obstetrician-gynecologists, other prac-

TABLE III

PERINATAL MORTALITY RATES BY OCCUPATION OF FATHER AND ETHNIC GROUP, NEW YORK CITY (PRIVATE PHYSICIAN AND GENERAL SERVICE), AND HIP, 1955

Occupation	Single Births and Fetal Deaths					
	Rate per 1,000 Live Births and Fetal Deaths ¹					
	New York City					HIP
Total	Private Physician in Hospital		General Service ⁵ and Other			
	Total	Diplomate in Ob-Gyn	Other			
White (Excluding Puerto Rican)						
Total	29.6	27.1	25.5	28.1	43.2	20.1
Prof., Mgr., Tech.	28.3	27.6	26.9	28.2	40.0	14.1
Clerical, Sales	25.3	24.2	20.9	26.8	34.6	9.3 ²
Crafts, Oper., Serv.	29.5	26.9	25.3	27.7	40.6	24.8
Laborers, Other	41.9	34.0	34.4	33.7	54.2	25.2 ³
Nonwhite						
Total	59.8	49.3	48.6	49.6	61.2	28.1
Prof., Mgr., Tech.	53.9	43.9 ³			60.5	
Clerical, Sales	40.2	50.0 ³	4	4	37.8	
Crafts, Oper., Serv.	45.0	31.9			46.9	
Laborers	86.6	136.5 ³			84.7	

tioners, presumably mostly general practitioners, or on the wards of public institutions.

The results here are quite interesting. The diplomates had a perinatal mortality rate of 25.5 per 1,000 births, the HIP rate was 20, while women delivered by the non-certified physicians of New York City had a somewhat higher perinatal mortality rate of 28. The patients delivered at Bellevue and on other similar services in the city had a very high rate. The explanation is quite obvious. Many of these patients came into the hospital in labor, often without having had any prenatal care whatsoever. The interesting question is: What accounts for the difference between the low HIP rate and two of the other rates shown here—that for babies delivered by the non-certified and the board certified diplomates. It will be noted that Drs. Shapiro, Densen *et al.*, corrected for social class. There is quite a consistent death rate trend by social class. By and large, the rates for each stratum are lower among HIP patients than among other groups, so social class, which is one of the major determiners of risk, has been ruled out as an explanation of the overall outcome.

There seemed to be two possible explanations for these rate differences. One is the very careful selection process used to pick doctors to give obstetric care to HIP patients.

I sat on the Medical Review Board of HIP for about a year and a half. Great care was

taken to ascertain that the doctors who applied for positions in HIP had adequate qualifications. Paper qualifications were not enough. Did this doctor have good training? What was his experience? Was the doctor under whom he trained confident that this man could be recommended as a first-rate doctor? The assumption was that the best judge of competence was the teacher who had observed and could evaluate the doctor's competence over time and under varying challenges and stresses.

The second important element of HIP may be monitoring of care. The continuing monitoring of care made it possible to detect faults and take corrective action. An information system is the *sine qua non* for maintaining the quality of care. It is also an important characteristic of good organizations that their directors be well informed. I am probably carrying coals to Newcastle in emphasizing this point before a group of administrators.

Quality of medical care has many other ramifications. Its most important association may well be organization, but it is also related to the costs of medical care and to other policy issues such as manpower. This is what I should now like to establish.

Table IV is taken from a comparative study performed by a group of Ohio surgeons. It involved a number of hospitals and a very extensive surgical experience. I think its conclusions are accurate. This study examined death rates following cholecystectomy by the responsible surgeon. When a resident performed the surgery, the postoperative mortality

TABLE IV
COMPARISON OF MORTALITY ACCORDING
TO TYPE OF SURGEON

Surgeon:	Certified	Resident	Noncertified*
All cases			
Total number	23,401	1,979	3,241
Deaths	383	69	68
Mortality	1.6%	3.5%	2.1%
Acute cases			
Total number	3,344	368	494
Deaths	99	29	21
Mortality	2.9%	7.8%	4.2%

* Not a member of American College of Surgeons or eligible for Boards.

rate was 3.5 percent. The non-certified surgeon had an operative mortality of about 2 percent, whereas for certified surgeons, it was 1.6 percent. Does the certification process select better surgeons so effectively? Doubts arise because the certification process is very academic in its emphasis: it may not test or examine the actual practice skill which explains poorer or better end results. Another explanation that could be offered is that the non-certified surgeons and the certified surgeons tend to practice in different kinds of hospitals. Being certified opens doors that are not open to other doctors who do not have this qualification. Another factor may be influential: this is the intensity of experience. Certified surgeons may receive more referrals and have larger practices than non-certified surgeons. The more operations a doctor performs, the better he will perform each one—other things being equal. The non-certified surgeons may include a number of general practitioners whose operation-load per year is small. The high rates observed for the residents can be confidently ascribed to their lesser experience.

There was another interesting statistic contained in this report. Hospitals in towns of greater than 25,000 population generally had lower mortality rates than hospitals in smaller towns. What this may really reflect is the fact that larger places have larger hospitals, which, as we have shown, tend to have lower death rates than smaller hospitals.

All surgeons in the United States do about 140 operations on average each year. This is a little less than three operations per week. That average, of course, includes the plastic surgeons, who do a very large number of quite minor operations and abdominal surgeons, who do fewer but generally more extensive procedures. A study of workloads of young, general surgeons at a Boston teaching hospital showed that they average only two operations a week. This is low productivity. It would seem logical to have fewer surgeons who do more surgery. This would not only give us more primary care physicians, which we need very badly, but it also might be a very effective way of reducing the cost of surgery which is much too high in the United States. The figure of 140 operations per surgeon each year in the United States can be compared with England where the average annual operation load for all surgeons is about

254. In other words, productivity is nearly double that of the United States. This greater productivity may account for the fact that Britain spends considerably less of its gross national product on medical care than does the United States. The United States is obviously well supplied or oversupplied with surgeons. If the number of surgeons were reduced and each one did more operations, this would probably improve the quality of care. Many of the statistics shown today have been intended to establish a relationship between experience and quality of care.

Now I would like to turn to another problem that illustrates the complex relationship between organization, costs and effectiveness. I am going to extend my argument a bit beyond the individual hospital because many problems require interhospital planning. The example is provided by coronary care units. I will show several diagrams that are taken from a study that was recently published in the *New England Journal of Medicine* by Mr. Bloom and myself. As background, I will use several diagrams, which are based on data from a sample of New England hospitals. I will also use some examples of treatment of myocardial infarcts in Massachusetts which are shortly to be published.

Massachusetts has about 11,700 doctors. If the 21,000 patients who are expected to have myocardial infarcts each year were distributed among the 11,700 doctors, there would be fewer than two myocardial infarct patients per doctor. Quite obviously, no one in planning CCU's has recognized that this is really a relatively uncommon disease. Since many doctors do not treat patients with myocardial infarcts, this statistic is not accurate. The doctors who are likely to be consulted by patients with heart attacks include the general practitioner, the general internist and the cardiologist. I assume that endocrinologists, neurosurgeons and other subspecialists will see relatively few MI patients and refer them when they do. We can now calculate that there will be about 8.2 events per doctor of this grouping. The event is somewhat more common as our allocation to the appropriate physician becomes more precise, but it still cannot be described as a "large experience." For example, when we think of surgery in quantitative terms, we would recommend that a doctor who does only eight operations a year should probably do none. Eight operations is not enough for maintaining skills. The same is probably true of the treatment of

myocardial infarcts. They are a very complicated and demanding kind of problem for the doctor to treat.

With only about eight patients per doctor per year, there obviously needs to be some means of concentrating their care to a few physicians. Patients with myocardial infarcts are a very sick group with a high probability of dying. The theory supporting the CCU says that there has to be a transfer of responsibility from the doctor to the unit which, in fact, is necessary if the unit team is to act promptly and competently when potentially fatal events occur. The concentration of care in a unit makes sense.

Massachusetts has 123 short-stay hospitals. Ninety-four, or 76 percent, of these hospitals have CCU's. From my office at the Harvard Medical School, I could almost literally turn around and see four hospitals within a few hundred yards. Each one, needless to say, has a CCU. Such excessive provision and duplication of facilities do not make any sense.

There is a second excess provision represented by the number of beds. In 1969, we collected information on CCU's in the Tri-State Regional Medical Program Area (Massachusetts, New Hampshire and Rhode Island) and calculated the number of beds needed to care for all MI patients who live to reach the hospital, plus the false-positives who are suspected of having an MI. The area appeared to have a comfortable excess of facility at that time. The situation was reviewed in 1972, when a 32 percent increase in CCU capacity was found. Finally, a telephone survey several months ago showed that there had been a further increase of about 10 to 15 percent. Despite the demonstration of an ample capacity in 1969, the expansion of CCU capacity goes on.

I would like to show some results of a study of a sample of New England hospitals. Table V shows the discharge diagnoses of patients treated in CCU's in 1970. These 32 hospitals

TABLE V
DISCHARGE DIAGNOSES

Hospital Group	Discharge Diagnoses				
	Myocardial Infarction %	Suspect MI %	Other Heart Disease %	Other Disease %	All Diagnoses
University Related	54.9	8.0	31.8	5.3	100.0 (N=2,126)
Other Teaching	51.6	10.6	26.1	4.7	100.0 (N=1,973)
Non-Teaching	41.8	11.2	27.1	5.7	100.0 (N=1,193)

were located mainly in New England but a few located in New York were included so we could examine the experience of large units (eight beds or more). There were few of this size in New England.

About half of the patients treated in CCU's actually had myocardial infarcts. This proportion is somewhat higher in the generally larger teaching hospitals and somewhat lower in the non-teaching hospitals, which are mainly smaller. The low proportion of MI patients shows that the provision of this highly specialized care is certainly ample or, perhaps more accurately, excessive. The patients who did not have myocardial infarcts included many with other heart disease, but also some other medical and surgical diseases. There were, for example, postoperative patients who had had hernia repairs or other surgery being treated in CCU's.

Table VI shows the average length of stay in the different kinds of units. The university units have more staff and are larger. It is not surprising, therefore, that they have an average stay that is shorter. Generally, the range tends to be less in the university hospital units. This difference between the teaching and non-

TABLE VI
LENGTH OF STAY

Hospital Group	Average Length of Stay	Range
University Related	4.4	3.5-5.0
Other Teaching	4.5	3.3-4.9
Non Teaching	5.1	2.9-8.8
All Hospitals	4.7	

TABLE VII
OCCUPANCY RATE

Hospital Group	Percent Occupancy	Range
University Related	78.8	71.1-96.4
Other Teaching	76.9	66.2-87.1
Non Teaching	70.6	27.6-92.6
All Hospitals	74.3	

IMPORTANCE OF OBTAINING HIGH QUALITY MEDICAL CARE

teaching hospitals is statistically significant.

Table VII shows the occupancy of the units. The larger university hospitals have higher occupancy rates than the other teaching hospitals, but this obviously is not an important difference. There are definite length of stay differences between the teaching and the non-teaching hospital units. This difference is also significant.

In our studies of CCU's, we have also found a relationship between a unit's size and the number of discharges per nurse which the economists use as a measure of efficient use of labor resources (Table VIII). There seems to be a fairly definite relationship. This one is not statistically significant, and the reason for the lack of significance lies in the low productivity of some university units and the high productivity of some non-teaching hospitals, or, in other words, the great variation within hospital groups.

Table IX shows a statistic which is of British origin. They call it a through-put statistic. It is simply discharges per bed. Here one can see a fair difference between teaching and non-teaching hospitals. Not surprisingly, the larger units in teaching hospitals have more discharges

TABLE VIII
DISCHARGES PER NURSE

Hospital Group	Discharges per nurse	Range
University Related	34.3	21.2-42.8
Other Teaching	29.8	20.5-46.6
Non Teaching	27.3	10.0-46.8
All Hospitals	29.8	

TABLE IX
DISCHARGES PER BED

Hospital Group	Discharges per bed	Range
University Related	64.3	52.3-79.8
Other Teaching	62.3	49.7-95.5
Non Teaching	48.5	16.0-95.5
All Hospitals	56.0	

per bed than the smaller units. This statistic is significant.

We did not think that this type of study would support any conclusions about treatment outcomes, but fortunately we did gather data on cases and deaths in the units (Figure 2). The number of patients is plotted on the abscissa. The percent of deaths from MI's by hospital is plotted against the ordinate. The enormous range of death rates in different units is striking. One can immediately conclude if CCU's lower the mortality from MI's, this may be the observed result of care in some units but not in others. Death rates in the group of hospitals with less than 50 admissions per year varied from less than 6 percent to over 48 percent. The hospital with a six percent death rate was one which has no distinguishing quality that would explain its low death rate. On the other hand, the hospital with the highest death rate in the study is one with a distinguished staff. It is difficult to imagine why the skillful care which they presumably are capable of giving should result in such a poor outcome. The more charitable explanation is that we are dealing with patient selection. However, there is something else. If one looks at the distribution of the dots, it will be seen that the death rate means for the smaller units must be higher than in the hospitals with larger numbers of patients. Before leaving this figure, it should be emphasized that a large number of hospitals

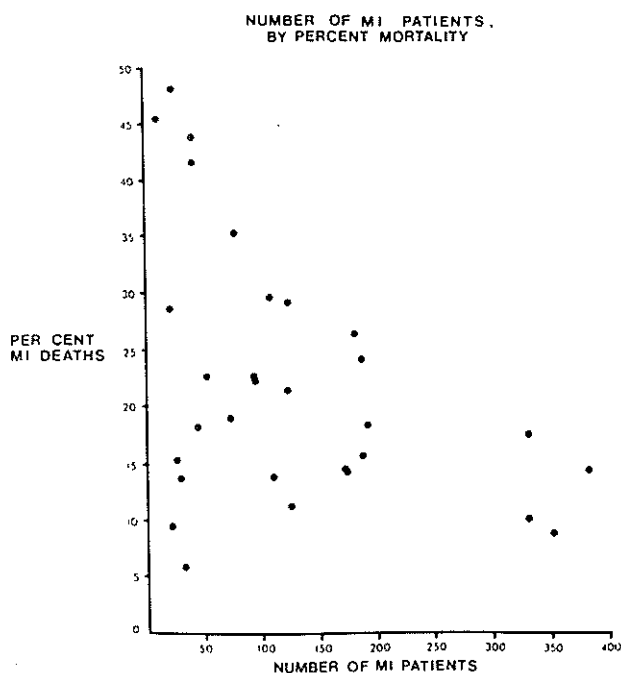


FIGURE 2

have CCU's treating a small number of patients. Is there any possible rationale for a CCU that admits only one patient a week? Can anybody justify such small units on the basis of efficiency or a belief that maintenance of skills of the CCU team is possible under such circumstances?

I might state, in explanation, that I do not believe that CCU's have been proven to be effective. I have tried unsuccessfully to organize a randomized clinical trial to settle the virtues of CCU's. However, it is almost impossible because almost all cardiologists believe they are effective and feel that it is now unethical to do an experiment to find out whether they work.

In Table X, we have examined the CCU's by the number of patients they treated during one year. The hospitals have been divided into quintiles with the six hospitals with the largest number of patients in the top, or 1st Quintile, and the six hospitals with the smallest number of patients in the 5th Quintile. The intensity or amount of experience in the different units was very great. Hospitals in the top quintile averaged almost 300 patients per year and those in the bottom only about 22. The second observation is that the death rates were quite different. Note the very interesting increase of death rates as the number of patients treated diminishes. The range of death rates is smaller where more patients are treated and increases as the experience becomes smaller. A likely explanation for the inverse association of death rates and numbers is patient selection—more patients are likely to provide a representative sample of all myocardial infarctions of all severities. The smaller numbers of patients treated in smaller units are less likely to represent a valid cross section of all myocardial infarctions of all severities. An alternative explanation is that the clinical skills deployed under the best of circumstances occasionally

TABLE X
M.I. DEATH RATES BY NUMBER OF PATIENTS
TREATED DURING THE STUDY YEAR, 1970

Quintile	No. of Hospitals	No. of M.I. Patients	Deaths	
			No.	Range
1	6	1780	241	13.54 10.0 - 15.2
2	6	964	193	20.02 11.2 - 29.0
3	6	614	145	23.62 13.7 - 35.4
4	6	287	71	24.74 5.0 - 43.0
5	6	133	33	24.81 9.5 - 48.0
Totals	30	3771	623	16.53 5.0 - 48.0

make a difference in the outcome. I feel that this is a plausible explanation. Unfortunately, we have no data on clinical severity of individual MI's that would allow further testing of this thesis. Larger CCU's are more efficient than smaller ones. Although we cannot conclude that effectiveness shows the same association, the possibility of obtaining several benefits from concentration of patients in few units appears attractive. Even if the only benefit were to be financial saving, this would provide reason enough for such a change.

I would now like to broaden the discussion to public health (Figure 3). The quality of medical care, if not available, has a value of zero, a point this figure is intended to illustrate. This figure was prepared by Dr. Edward Kass for obviously nefarious purposes. In a lecture given several years ago to a group of doctors, he pointed out that medical care had not always been very effectively applied. This experience is taken from England, because it has had reliable statistics for a much longer time than the United States. Evidence from the United States will be cited in a minute.

Note that the diphtheria bacillus was discovered in the last century. The diphtheria antitoxin was described early in the twentieth century and soon became the basis for a combined toxin-antitoxin immunization procedure. The diphtheria toxoid, a more effective immunization was developed about 1924. Finally, penicillin became available for treatment of cases at the end of World War II. The interesting thing about the decline of diphtheria death rates in England is that the discovery of the organism, of the antitoxin, and antitoxin-toxin and the toxoid immunizations did not seem to have much effect on the death rates. In 1940, the diphtheria death rate curves did drop

sharply. This was related to a specific event. Britain was at war and children were evacuated from the cities. There was a great fear that outbreaks of diphtheria and other infectious disease epidemics would occur while children were concentrated in trains during transporting or in hostels, schools or churches where they were temporarily housed during the evacuation. England's chief medical officer went on the radio in 1940 and, in apparently what was a very dramatic speech, urged that all children be immunized so that diseases that could be prevented were prevented. The time was right. Doctors cooperated and the population responded. The number of children immunized was great. The diphtheria death rate plummeted.

If we were to show the U.S. death rate, we would see no sharp drop. Indeed, in 1970, we had 435 cases of diphtheria. There were two epidemics, one in the black population of Chicago and the other in Houston, Texas, among the Chicanos. The point is, of course, medical care that is so poorly organized that it cannot reach all of the population with an effective preventive measure has, obviously, a very low quality rating. The United States has not yet had any year without a single case of diphtheria. England, by contrast, has had quite a few diphtheria-free years, though it keeps breaking out from time to time, often in institutions for the mentally subnormal. In contrast, in the United States the cases appear in the ghettos, in the black populations, in the Chicanos and other of the poor.

Medical care outcomes that deal with easily counted events such as death or survival are hard to argue against. It is clear that larger institutions with more diverse staffs and services have been shown by many studies to produce better end results. I think this is a result of better organization and better administration. Better administration, I judge, involves both encompassed under the usual heading of "hospital administration" and those activities characteristic of the medical, surgical or other services which are usually the responsibility of physicians. Quality of medical care is also dependent on adequate experience or number of patients. The example of myocardial infarctions has been used to show that some degree of hospital specialization is required to assure high quality of care.

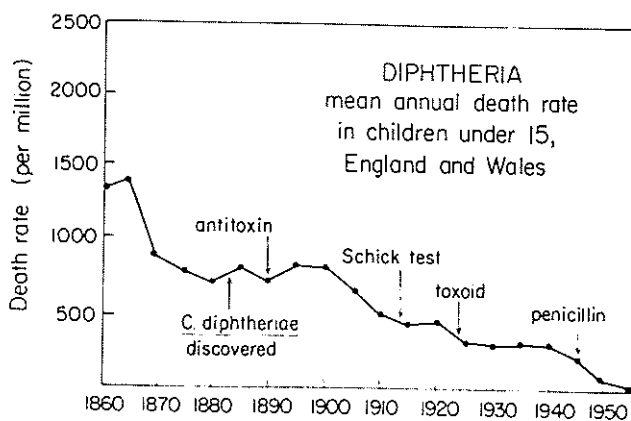


FIGURE 3

There have been two studies which approached the problem of quality from another point of view. One was done by Duncan Neuhauser while a graduate student at the Center for Health Administration Studies. Neuhauser, who examined some 30 Chicago hospitals, found that those which were characterized as having good administration by several measures had better outcomes than those whose administrations were classified as weak by objective measures. Revans, working in England, found that there were a number of hospital characteristics, including the length of patient stay, nursing turn-over, wastage of student nurses and student nursing sickness rates which were related to the effectiveness of the communication systems in the hospital.

Thus, the problem of quality of care, whether viewed from the medical or from the administrative side, suggests that organization and administration have a very definite effect on the quality of care.

I actually began my studies of the quality of medical care thinking that attention to administration and organization was unnecessary. I regarded it as a bothersome job, which could be given to any kind of a clerk who had pack-rat mentality and who could keep track of detail. I thought any fool could do it on a part-time basis. I have changed my position completely. Instead of believing it is an unimportant characteristic, I believe it is the central issue of medical care.

Thank you very much.

Assessing the Quality of Patient Care—The Bi-Cycle Concept

CLEMENT BROWN, M.D.

CHAIRMAN SHORTELL: Our next speaker is Dr. Clement Brown. Dr. Brown is Director of Medical Education here at Mercy Hospital in Chicago. He is also Associate Professor of Medical Education, the Center for Educational Development, University of Illinois College of Medicine.

He received his M.D. degree at Georgetown University. His topic is: "Assessing the Quality of Patient Care—The Bi-Cycle Concept." He is the originator of this concept and, in fact, has had a great deal of practical experience in implementing it in over 200 hospitals around the country, including his work at Mercy and with other hospitals in Chicago. So it is a great pleasure to introduce Dr. Clement Brown.

Dr. Clement Brown: Thank you, Dr. Shortell, and good morning.

During the past year I have had the privilege of chairing a committee of the American Hospital Association. The committee developed a manual called "Quality Assurance Programs in Hospitals," that big, blue loose-leaf book that I am sure most of you have received. I want to start by quoting a brief paragraph from that manual:

The advances of medicine in the twentieth century have provided mankind with the capability to cure many diseases and control the course of others. This capability has changed the right of access to quality medical services from a luxury to a utilitarian necessity in today's world. It has given society as a group, and the community as individuals, a justifiable role in determining how, when, where and what medical services should be delivered.

Further, it has given the patient who receives care and those who purchase care for him, a right to the assurance that care received is of optimal quality.

So the patient has a right to assurance of quality medical care. How do we operationalize that right, or how do we make it happen? Possibly there are prior questions, and here are some

of the best I know to stifle change. "What is the problem? It is already happening. We are doing that," or, "We tried it last year. It costs too much." Well, is it already happening? Are we providing quality care in our hospitals in this country? Is there a problem in the quality of care that we are delivering?

Let me give you a few bits of data from our experience over the last three years in working with over 220 hospitals in almost every area of the country, and then let you decide if we are delivering quality care in this country.

In one of the hospitals with which we have worked among a group of patients receiving antibiotics, in only 30 percent of the instances were the antibiotics indicated and used appropriately. In a number of the hospitals that we worked with, both in this country and in Canada, chloramphenicol was being used as a routine postoperative order.

We found a hospital where only half of the primary appendectomies done show acute appendicitis on tissue examination; another hospital with a 22 percent complication rate for this commonly done operation. This same hospital, however, had only a 4 percent *recorded* complication rate. This discrepancy between recorded and actual complication rate is a frequent finding. A recorded complication rate of 10 percent will almost invariably end up as a 30 percent complication rate under closer scrutiny. These additional complications may be easy to find and a significant number of them are preventable.

With respect to drug usage outside of hospital as well as in hospitals, in one state the third most commonly used injectable drug is Gaminol. It took about two weeks to find out what that drug was. Interestingly enough, it is an injectable expectorant.

Acute myocardial infarction has been reviewed in many of the 220 hospitals. In more than half, the average time from admission to the hospital to the time on a monitor is almost

invariably over two hours. Dr. Peterson raised the question of the effectiveness or efficiency of coronary intensive care units. I happen to think they probably provide a significant survival advantage. But knowing that the peak rate of death in acute myocardial infarction is 30 to 45 minutes after its onset, how can we excuse a delay of more than two hours and, in some instances, as long as four to six hours, from admission to the hospital or admission to the emergency room to the time on a monitor? Even worse, in many hospitals, only about 50 percent of the patients who are discharged with a diagnosis of acute infarction have been monitored at all.

In a university hospital, there is a 100 percent complication rate for a frequently done operation, hysterectomy. The single indication for half of these hysterectomies was one Grade III Pap, unrepeated, and most of these patients were under 30 years of age.

In many hospitals patients with a persistent diastolic blood pressure of 100 or above carry a diagnosis of hypertension and receive minimal therapy in only 22 to 25 percent of the cases. We know we can very significantly alter the natural history of hypertension by diagnosing and treating this disease, and the disease is easily diagnosed and treated. Yet we are at a 22 to 25 percent level of diagnosis and therapy in the hospital and probably much less so in outpatient care.

In some hospitals the average time from admission to the operating room for elective cholecystectomy is three days or more. As many of you may know, there is a five-day longer stay for this most commonly done operation on the East Coast, as compared to the West Coast. We have difficulty as health professionals trying to explain that difference to Congress.

Congestive heart failure patients, with that diagnosis on discharge, often leave the hospital with greater failure than when they came in on the basis of increased body weight, increased respiratory rate and pulse rate. The same patients are often off digitalis, presumably because somebody has misinterpreted an EKG report that says digitalis effect, as digitalis intoxication.

These are some of our findings and I will let each of you draw your own conclusions about the quality of care delivered. But remember, also, these are the hospitals that wanted to improve.

The range of hospitals with which we have

worked includes 50- and 60-bed rural hospitals and 1,000-bed inner city hospitals.

Even though we most often hold our workshops at an academic medical center, it is rare that any team presents itself from the university hospital. I was at the University of Washington during this week as visiting professor. It seems the feeling there is that we have quality, we are quality, and we don't need to show anyone that we are. Indeed, that may be so. I am not implying that quality medical care does not exist at Washington hospitals. What I am concerned about is the lack of data, one way or the other, in most academic health centers.

I shall now share with you our process which provides what Dr. Peterson described as an information system. Such a system is critically important if we are to improve care where necessary, or, indeed, to find out if it is necessary to improve our care.

This is a system which we have been helping hospitals implement in the workshops that we have been doing around the country. It is a process that we initiated at Chestnut Hill Hospital seven years ago, and then replicated in ten hospitals of various kinds around the Philadelphia area during the past two and one-half years. We call the process, or concept, "the Bi-Cycle Concept." (See Diagram 1.)

The concept begins with the interaction between the patient and physician or patient and any other member of the health care team. This interaction between the patient and the health professional should produce some data. The data is entered on a problem-oriented record (Step I).

But there are some steps prior to the development of a problem-oriented record. These steps include the development of a series of standardized age-oriented data bases which would include the notion of prevention or the techniques of Health Hazard Appraisal. It seems important to define the data base required on every patient admitted to each of our institutions.

At Mercy we are developing a series of standardized age-oriented data bases such that within two years 85 to 90 percent of our patients who are admitted electively arrive at the hospital with a fairly complete, standardized age-oriented data base. It seems strangely inefficient to begin each hospital admission by re-collecting all of these data on the patient as though he were dropping into the system from Mars.

The data often are available at some other

place in the system. Thus it seems quite appropriate that the patient arrive at the hospital with the data in a fairly organized kind of form, so that we can begin identifying very quickly the patient's problems. In fact, the data base should include a problem list and indicate the current status of all of the patient's problems as the referring health professional sees them.

A prior step in the process is deciding what should be in the data base. Some of the data that are presently collected seem irrelevant to current needs for providing good health care,

ASSESSING QUALITY OF PATIENT CARE—BI-CYCLE CONCEPT

and some of the very important things that ought to be there are not.

The problem-oriented record is abstracted and computerized in the next step of the process (Step II). Here we used the PAS-MAP system. But even in a small 200-bed hospital this provided us with a tremendous number of problems. Where should we start?

John Williamson had an answer to this very important question. John suggested we start by identifying and weighting various factors of disa-

THE BI-CYCLE CONCEPT

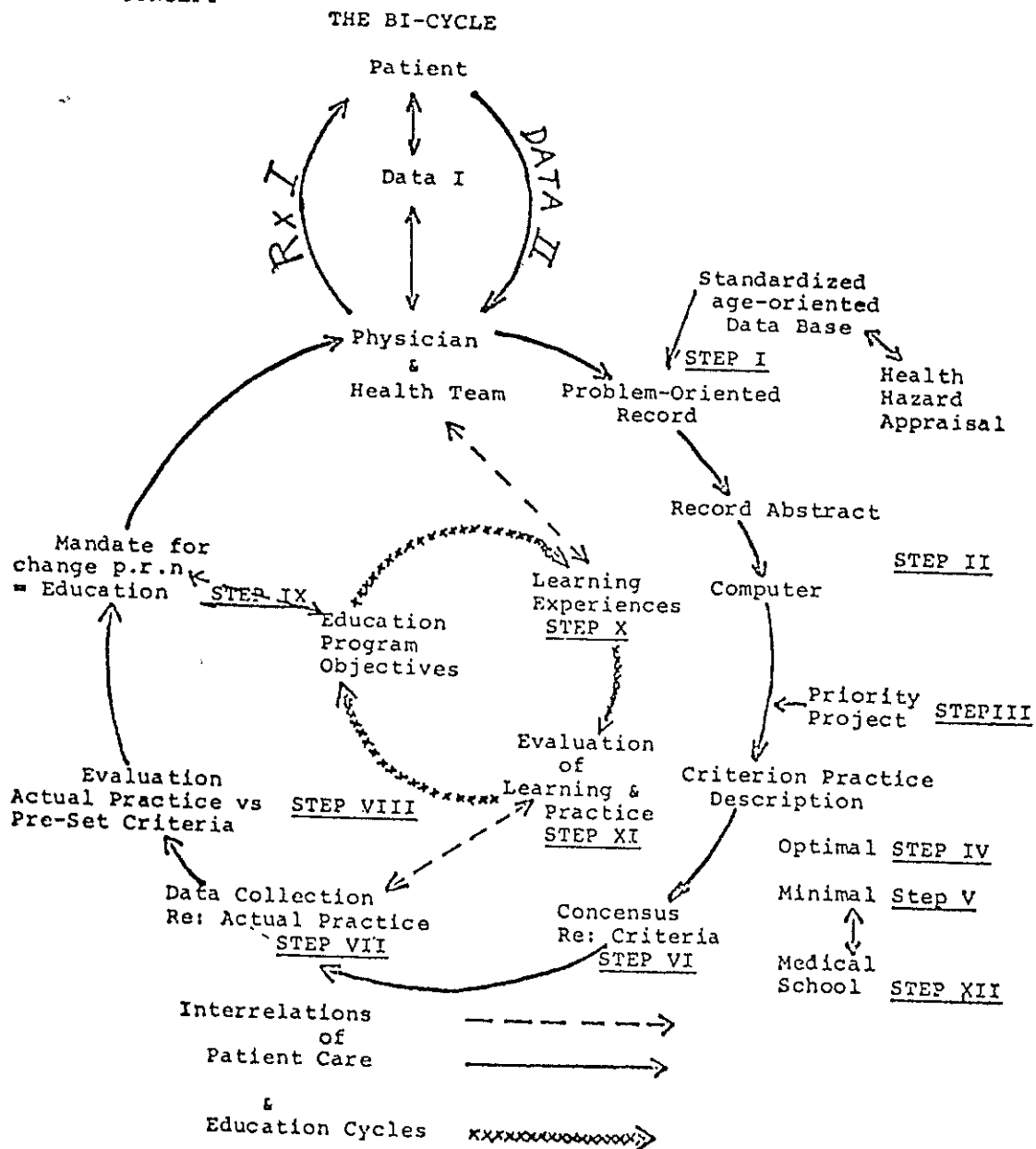


DIAGRAM 1

bility to find our greatest causes of disability. He then suggested we reset our priorities, ordering first those causing the greatest amount of *preventable* disability; things we could do something about (Step III).

We then moved into the next step of the process where we began to describe a criterion practice for these diseases, illnesses, conditions, and operations that caused a lot of preventable disability (Step IV).

We asked ourselves: Ideally, how should a patient admitted to our hospital be managed, whether admitted for elective cholecystectomy, acute myocardial infarction, pneumonia, or whatever? One of the more difficult challenges in this process is the development of the criteria for care. Let me illustrate a few of the pitfalls.

Last year, I was consultant to the Hawaii EMCRO project that Dr. Peterson mentioned. I was asked out because they were about to get their third feedback of data in this project, and after the first two feedbacks, no significant change had occurred in the hospitals to improve care.

The problem seemed quite apparent. The criteria had been developed by panels of physicians from around the state and were sent to the hospitals for their adoption. As I worked with the groups in the various hospitals I could see that they had not internalized or operationalized, these criteria. They had not developed them.

At one of the hospitals they had adopted very beautiful criteria for pneumonia. They asked me to react to their criteria. They had criteria for the diagnosis of pneumonia which looked very good. I asked them if they had discovered any problems on the basis of those criteria. They said no. Almost all patients in this particular hospital with a diagnosis of pneumonia actually had pneumonia based on the criteria.

I said, "Did you anticipate you would have a problem with the diagnosis of pneumonia?" And they said, "No, not particularly."

I said, "Did you anticipate you would have a problem at all with pneumonia?" They said, "Yes, we thought maybe some people might be here in the hospital with the diagnosis of pneumonia, correctly diagnosed, but maybe many of them didn't need to be here."

I asked, "What are your criteria for admission of pneumonia?" They hadn't worked on those.

Another pitfall is developing multiple criteria. I think this is one of the chief problems

with the Payne study. They have pages and pages of criteria, many of which seem to make little difference in the care of the patient as far as I can determine. But some criteria that are highly pertinent to the care of the patient, I find have been overlooked.

In the "Bi-Cycle Concept" we ask groups to develop both optimal and minimal criteria (Step V). The notion of minimal criteria for practice is: At what level can you describe practice, such that if you find practice below that level, you will be so upset that you will do something about it?

If 95 percent of our patients are managed appropriately according to our criteria, we are probably not going to expend any human energy to achieve a change in the other 5 percent, unless the management is critically important. But below the level of 65 or 70 percent, we would probably mount some kind of a change program to improve care. This is the notion of minimal criteria.

This is a step in the process where we think the medical school might well be involved (Step XII). Usually we find that a medical staff must become comfortable with the entire process and the criteria that they have developed before they will risk externally validating the criteria with the medical school. But this can be a very valuable kind of process and gets at the question I have often been asked: "If a hospital staff develops its own criteria, who says they will be any good?"

We have rarely found criteria that are really poor, or criteria that allow for poor practice. Often they are too much the other way. They are unreasonably strict, but you can provide for an opportunity to externally validate your criteria by having a medical school, a specialty organization, or some other kinds of external organization react to your criteria. But first develop your own criteria within your institution.

We worked for about a year with the Jefferson Medical College in Philadelphia when I was at Chestnut Hill Hospital doing just this, and, indeed, sometimes found that our care was as good as their care, sometimes better. But whenever they reacted to our criteria in such a way as to advise that we should be doing something that we were not, we had an opportunity to audit their practice and see if, in fact, they were doing what it is they said we ought to be doing. Sometimes we found they were not doing it either. Then we had to find out why

neither of us was doing it. There were some very good reasons, sometimes, and it introduced a note of practicality, in these instances, into what was going on at the medical schools, and sometimes it introduced change into our operation.

After the criteria of practice are described within the audit committees, we forward the criteria to the department where consensus was necessary for approval of the criteria (Step VI). Then we began collecting data concerning the actual practice we were providing (Step VII).

The next step of the process is to look at the data from the practice that we are providing in the light of the criteria (Step VIII). If there is a significant difference, some kind of a change process must be agreed upon (Step IX).

I have said, change process rather than education, because of the often restricted notion of education. When we talk about education here, we are talking about a change in behavior to produce some kind of desired end, presumably in health care. A change in behavior of some health professional to move practice from where you find it to where you have decided you would like it to be. But the change program more often than not does not look like a standard kind of an educational program. For instance, our surgeons agreed that most patients who have elective cholecystectomy probably should have an operative cholangiogram, but when they looked six months later, they found out that substantially less than half of the patients who had elective cholecystectomy had an operative cholangiogram. They had to ask themselves why. It turned out that the basic reason most patients did not have one was because at the time the surgeon was ready to do his operative cholangiogram, the x-ray equipment wasn't available in the operating room. So the change there was simply to get one of the board of trustee members to write out a check for a new piece of x-ray equipment so we could practice the way we all agreed. It wasn't a knowledge problem. The physicians had agreed. They felt there would be a significant reduction in complications and stones remaining in the ducts. The point I wish to make here is the reason it wasn't happening was not because people didn't agree it should happen, or didn't know it ought to happen, but that a piece of equipment in this instance was not available.

Often our referral process within the hospital kept things from happening. Again, not because

the physicians didn't know things ought to happen, but simply the way they referred their patients kept things from happening.

Another instance of need for organizational change relates to our use of antibiotics. Our physicians agreed fully, after our antibiotic study, that anybody with a sore throat should probably not be receiving chloramphenicol, penicillin and tetracycline or a combination like that, but should probably have a throat culture and receive penicillin for ten days; if the culture is positive for strep. What we encountered was the fact that most of the physicians don't have this kind of equipment available in their office; culture media, incubators and so forth. What we had to do was provide the organization such that they could practice in the way they all agreed. So the laboratories began going out to physicians' offices each day and picking up not only throat cultures but other kinds of samples that they agreed should be available, that they were not acquiring on their patients. We had to provide for the organizational structure so that some of these changes could occur.

When a department does agree on the need for some kind of a change, we can begin the process of structuring the change program, and this process provides a good opportunity to write educational program objectives in a way they really should be written. That is, to describe the behaviors of the health professional that need to get us from where we find practice to where it ought to be (Step IX). They become the objectives of our change or educational program. We can then more appropriately structure the learning experiences based on those educational program objectives (Step X). Let me provide an example of the need to structure the change program appropriate to the needs of the health professional in meeting patient needs. We recorded the number of pelvics and Paps that were done in our hospital. We did this in relation to some other hospitals in our area and found that none of us were doing very well. We were all at about a 10 percent level of doing pelvics and Paps in the hospital.

Somehow I suspected this; though, if I were to present this to the medical staff, someone would stand up and say: "That is no problem. I do the pelvics and Paps in my office." And, I would immediately recognize that person as someone who did them in his office. Another physician would probably stand up and say the

same thing, and I would recognize the same thing about that physician. Then everybody else would sit there and smile. I would know darn well that most of them weren't doing it, but they had just been taken off the hook. So before revealing our level, I had my secretary put on a white coat and ask 200 consecutive women admitted to our hospital: "Have you had a pelvic and Pap in the last year? Or ever? Who is your doctor? Would you have one if we had the service available here?" and a number of other questions. What we found out was that less than half of our patients admitted had a pelvic and Pap within the past year. More than 50 percent of that group had *never* had a pelvic and Pap. Armed with these data, we did go before the staff and reveal where we were, and as predicted, the two physicians got up and told us what they were doing. Then we shared the data with the staff and they agreed there was a problem.

The next step was to change or structure an appropriate learning experience. We identified four different subgroups of physicians. One group was doing them in their offices, and obviously no change was necessary except to offer an opportunity for somebody to observe what they were doing to make sure that they were doing it correctly. There was a second group of physicians who said: "I agree I should be doing pelvics and Paps with some kind of regularity, but I don't know how to do them. I graduated some years ago. I would like to learn." For this group we set up an appropriate kind of learning experience and let them actually do pelvics and Paps in the obstetric and gynecologic clinics under observation until they learned this skill. We felt that simply showing them this on a TV screen was not going to help them. We could not be sure that they had learned the skill in that kind of an experience. So we actually set one up where they could perform the skill under observation.

A third group of physicians said: "We agree that pelvics and Paps ought to be done. We don't know how to do them and we don't want to learn how because we are too busy, but we would be happy to have someone else doing them on our patients." So we had to set up the mechanism for that to occur. One of their concerns—and for them it was appropriate in our setting—was: What can we do? We are afraid to send our patients, or some of them, to the ob-gyn man because they may steal our patients. They won't send them back. They will

tell the women that they are the family doctor. They may not send the patient back to us for the primary care we provide to them and their family.

We knew that was a problem in our area, so we had to set up the mechanism so that patients wouldn't be taken by the gynecologists from our primary care physicians.

There was a fourth group of physicians who didn't understand the necessity for annual pelvics and Paps. Presumably, some kind of an attitudinal change was needed. With this smaller group we worked a little more intensively. Usually, however, one of the prior problems existed to which they just wouldn't admit. Either they didn't know how, and that is about the last thing a health professional usually wishes to admit; "I don't know how." "I don't think it is very important" was a less frequent response but one which required data on the value of pelvics and Paps in prevention of cancer of the cervix.

Finally, then, we evaluate any change, both in knowledge and practice: knowledge by exam and re-exam (Step XI), but most importantly practice by re-entering the patient care cycle (Step VII), remeasuring practice to see now if, in fact, more patients have annual pelvics and Paps.

Some of our results show within a year we had gone from a 55 percent level to an 89 percent level of appendectomized patients showing acute appendicitis on tissue exam with no more ruptured appendices and no more complications. We had gone from 155 appendectomies a year to less than 100 a year. We reduced by 30 or 40 the number of hysterectomies per year we were doing in this institution.

In summary, the "Bi-Cycle" diagram is offered as a concept relating the patient care cycle to the continuing medical education cycle. It is suggested that the patient care cycle begin and end with the patient, just as the education cycle should begin and end with the learner. This provides the feedback necessary for constant change, and keeps both cycles relevant to patient and learner needs.

The patient care cycle begins with the patient and his interaction with his physician and the health care team. The physician should determine all the patient's problems and compile a problem-oriented record (Step I). The record then is abstracted for a computerized medical records system (Step II). Using a system of priorities (Step III), those diseases or conditions

which offer the greatest opportunity for improvement of care should be selected for criteria development. An audit committee in each clinical department develops an optimal (Step IV) and minimal (Step V) criterion practice description which is then offered to the parent clinical department. When consensus concerning the criteria (Step VI) is gained within the department, data collection concerning actual practice (Step VII) takes place. The data concerning actual practice are evaluated against pre-set criteria (Step VIII) and when there is a significant difference, a mandate for change-educational program development (Step IX) is secured. The gap between the actual and criterion practice represents the improvement potential and actions for closing the gap can then be translated directly into educational program objectives.

Now we have moved from the patient care cycle to the educational cycle. After the initial educational objectives are stated, it may be

ASSESSING QUALITY OF PATIENT CARE—BI-CYCLE CONCEPT

necessary to perform further educational diagnosis before providing therapy. Such diagnosis will help determine whether changes are required in the cognitive, skill, or attitudinal domains. The therapy in the form of the learning experiences (Step X) should depend on such a diagnosis. The final evaluation of the educational program should be in terms of improved patient care—patient needs met (Step XI)—and we re-enter the patient care cycle to collect data concerning the new practices (Step VII).

Other interrelationships of the two cycles should be apparent from the diagram.

We can also, through this process, provide our board of trustees and our administration with the data that they must have to assure our patients and communities that we are providing quality health care.

Thank you.

Health Accounting and Outcome Measures of Quality of Care

JOHN WILLIAMSON, M.D.

CHAIRMAN SHORTELL: Our next speaker is Dr. John Williamson. Dr. Williamson is Professor, Department of Medical Care and Hospitals at Johns Hopkins University. He has previously been affiliated with both the University of Illinois School of Medicine and the University of California School of Medicine. He received his M.D. degree at the University of California School of Medicine in San Francisco. Most of his work has been in the area of trying to measure outcomes of medical care and incorporating them into medical care quality assurance systems.

DR. WILLIAMSON: Outcome assessment is probably the oldest method of quality assurance in history. In 3000 B.C., if a patient were to unnecessarily lose an eye, the physician would lose a hand. Now, this quality assurance method was based on outcome assessment.

From that time on, our profession worked with a variety of other methods, primarily based on process methods. For example, in ancient Egypt certain therapies *had* to be given. In the Middle Ages accreditation methods were developed, especially educational accreditation and later, licensure. In the 1930's specialty boards were developed as one of the most definitive accreditation methods. Unfortunately, outcome assessment has been abandoned in the thousands of years since the Egyptians.

Codman, at the turn of this century, tried to focus our attention on systematic, ongoing assessment of medical care by looking at what happened to the patient. It is interesting that Codman did his work at Massachusetts General, and, as will be seen in a moment, he focused on the area that I call therapeutic outcomes. He had a colleague, Cabot, who in 1912 published a work that was a study of 3,000 consecutive autopsies. This study illustrates diagnostic outcome assessment. Cabot compared autopsy results with the previous clinical diag-

noses, to see how many cases of certain diseases were missed, or how many cases were misdiagnosed.

Consequently, we have two men working in the same institution at the same time in history, both bringing our attention to outcome assessment as an effective mechanism for improving quality of medical care.

Since that time, outcome assessment has been obscured again. At present, a jumble of methods including outcome, process, and accreditation are in use. But one thing has happened during the past few years. An outcome method of assuring quality of care has been universally applied and accepted throughout the country; the malpractice lawsuit. Now if a patient unnecessarily loses an eye, the doctor loses his shirt, and maybe his reputation. We are back full circle to the Egyptians. However, it must be admitted that outcomes have been recognized over many years of history. And at this time we are just starting to explore their dimensions, their potential, and how they might be applied.

My talk this morning will have three major parts. The first part will briefly cover some basic concepts of outcome assessment. The next part will illustrate the application of these concepts in a few studies that have been done recently. Finally, the third part will discuss how this approach might be made practical in an organizational setting such as a hospital or clinic.

So first, let's review the theory. Quality assurance must be based on two major functions: quality assessment (which is problem identification) and quality achievement (which is problem solution). This must be the foundation for any quality assurance system.

Quality assessment like medical diagnosis or like management analysis requires a large variety of methods, not just one magic approach like peer review or outcome study. An armamentarium of methods is needed to get at the variety of problems to be found in the health care sys-

tem today. However, if quality assessment is to be effective, it must follow the simple rules of inductive problem solving. In other words, first, we must identify the problem.

This is known as identifying an unacceptable outcome. Then we must work back to identify correctable determinants of that problem and, from that point, design what we have to do administratively, educationally, or whatever, to effect a solution.

Finally, quality assurance must be comprehensive in scope. There are many types of outcomes, for example, that can be studied. The more important ones encompass clinical outcomes. This includes diagnostic and therapeutic outcomes. How many patients received treatment for a condition that they didn't have? How many patients required treatment for a condition that was not diagnosed? These are diagnostic outcomes.

The second important type is therapeutic outcome. What was the level of health impairment after care? This level can be compared with some standard, either the previous impairment level or some health level present knowledge would indicate should be achievable.

Next we have economic outcomes. These include cost and financial factors as well as use of professional time and other scarce resources.

Educational outcomes are also important. They have to do with such aspects as patient understanding of his own illness and patient behavior, including compliance, attitudes, values, and satisfaction with his medical care.

The basic principle is to assess care to identify unacceptable outcomes and then work back to identify areas where it might be possible to improve care to effect a more satisfactory outcome.

In this case (Fig. 1), if the outcome were a patient who had a stroke at age 52, there might be several possible determinants to be explored. One would be the fact that he had an organic medical condition, diastolic hypertension, that might have caused this stroke.

Another factor might be that the patient was not complying with his medical regimen and was not taking the medication that was required to control the hypertension. Or, there might be genetic factors involved. What could be done about these factors is an open question. Finally, there might be severe work stresses or emotional factors involved. There may or may not be remedial action that we can carry out to reduce these problems.

ANALYSIS OF THERAPEUTIC OUTCOMES

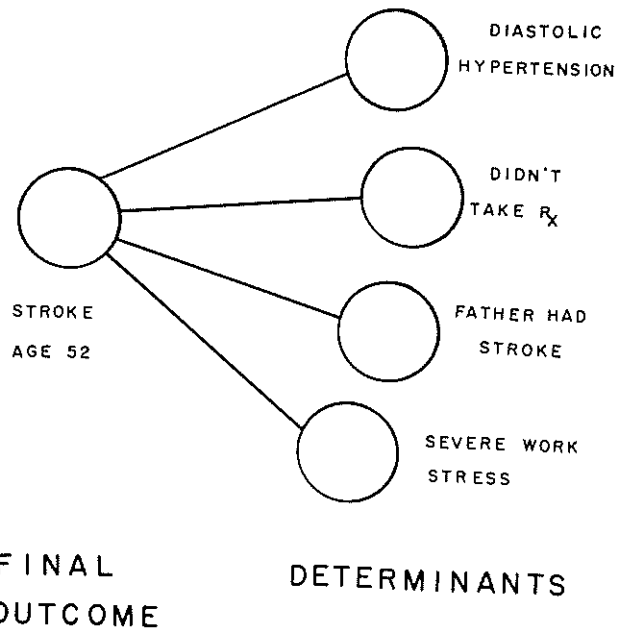


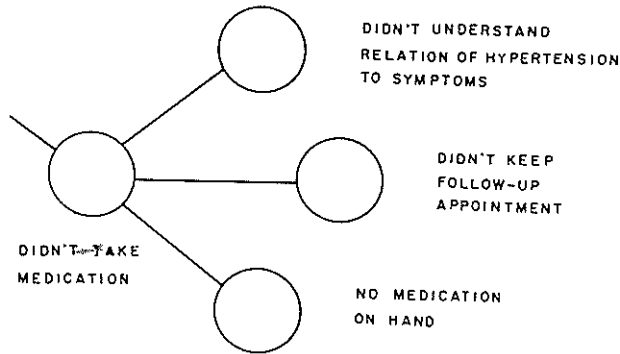
FIGURE 1

Figure 2 illustrates an important intermediate outcome: the patient didn't take his medication. Analysis of the determinants might reveal that the patient didn't understand the relation of hypertension to symptoms. There is an important principle that must be understood by every hypertensive patient: his symptoms may have little relation to the severity of his illness. If he does not understand this, it is possible he may wait until his symptoms are severe before he takes his medication or sees his physician. Unfortunately, his first symptom might be death.

Another determinant might be the fact that the patient didn't keep his follow-up appointment or that he didn't fill his prescription.

Figure 3 illustrates that the final outcome is a product of many determining factors that could be subject to analytic study. The principle to be stressed is that the further down this tree an investigation is started, the more likely it is that important branches and hence vital correctable factors will be missed. Unfor-

ANALYSIS OF THERAPEUTIC OUTCOMES



INTERMEDIATE OUTCOME DETERMINANTS

FIGURE 2

ANALYSIS OF MEDICAL CARE OUTCOMES

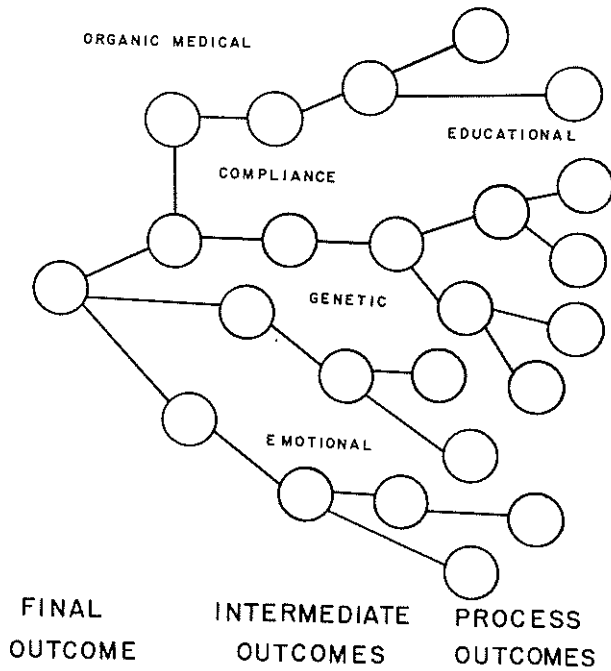


FIGURE 3

Unfortunately most medical audits and traditional peer review studies focus on chart data that are down in the organic medical branch. Such studies are very likely to miss many major factors of value.

The following studies will illustrate applica-

tion of this principle. The first has to do with investigation of heart failure patients in the Baltimore City Hospital, which is affiliated with Johns Hopkins. These patients were followed for one year.

The first outcome studied related to the case fatality rate measured at one year following admission to the coronary care unit. The results were compared with standards developed from actuarial data and peer judgement in terms of the maximum acceptable impairment. The maximum acceptable was approximately 30 percent, and the findings were about the same. Thus no further study of determinants seemed necessary.

However, focusing on another level of impairment at the one year follow-up point, the proportion not at work was assessed. The maximum acceptable level was set at 20 percent. Findings revealed 40 percent of the patients were not back to work a year later, a result that did not meet the standard.

This was an unacceptable outcome. It seemed important to study determinants to see if correctable factors might be found. It is not feasible to establish causal relationships, but identifying associational or correlational factors might be of value.

In this particular case it was of interest that almost two-thirds of the patients who were not at work had not had a myocardial infarction at the time they were in the coronary care unit.

Tracing this finding reveals an interesting thing: at the coronary care unit at Baltimore City Hospital at the time, approximately 60 percent of the admissions were found not to have had a myocardial infarction. With such a large number of false positives, there may be a substantial number whose health may have been influenced adversely. This is especially important in view of the English controlled clinical trials that indicate that even patients with actual acute coronary occlusions might be better off at home than in a CCU.

The next illustrative study focused on care of patients with hypertension who came to a hospital emergency room for any reason. Again, this group was followed for one year.

This group of people, whose average age is about 49 or 50, were mostly blue-collar workers who were actively at work when first included in the study. Using actuarial data, modified by such information as other types of illness and other prognostic factors related to these patients, a maximum acceptable number of

patients who might be dead after one year was determined. The findings revealed that over 20 percent of the group were dead one year later. This was an unacceptable outcome. It seemed important to study the determinants to identify any correctable factors.

Now, although this was not part of our immediate study, Tom Inui, one of my graduate students, made this problem the essential focus of his master's thesis. The following data from his thesis will be presented to illustrate this analytic process.

In this study the results from two groups, an experimental and a control group, will be presented. Some 59 medical doctors (which is almost a universe sample at the Johns Hopkins Medical Clinic) and 218 patients for whom the physicians gave primary care for hypertension participated.

These physicians and patients will be evaluated before and after an experimental variable is applied. This experimental variable will be physician education in the form of special tutorials given only to the physicians in the experimental group and not to the control doctors. The control group physicians will receive very similar "placebo education" in which they will be told that their patients are to be studied and followed. They were given instructions that did not cover specific information regarding hypertension. The experimental group received the specific education regarding hypertensive outpatient care to see if it would make a difference in physician behavior and whether physician behavior would make a difference in patient behavior and patient health.

For example, the "Before" evaluation determined whether the physicians were aware of the problem of patient pill compliance. Results indicated that at the beginning of the study the controls seemed to be more aware of the importance of compliance than those in the experimental group.

After the tutorials, the charts were reviewed to see if there was any evidence of changed physician behavior. Mention of patient compliance in the chart was significantly greater in the experimental group, as was recorded mention by the physician of patient understanding and mention of patient health education provided.

What happened to the patients?

The first variable measured was the patient's ability to correctly recite the medical regimen given by his physician. Findings revealed the

experimental group was significantly better than the controls. Also, did the patient recognize hypertension to be dangerous to his health? Again, the experimental group was significantly better than the controls.

Did the patient believe that therapy was effective? This could be a big factor in compliance. The findings revealed that the experimental group was significantly better than the controls.

The most important variable concerned whether the patient believed that he was susceptible to danger with hypertension, even though asymptomatic. Did he understand that there is very little relation between symptoms and outcome in this disease?

The findings indicate that the experimental group was significantly better, and that the improvement was apparently related to our experimental variable.

In another phase of patient evaluation, the focus was on compliance, defined here as taking at least 75 percent of prescribed pills.

This was measured by actually counting the patient's pills. Again, the experimental group was significantly better than the controls.

The intermediate outcome studied was the blood pressure of the patient. Again, the experimental group had a significantly greater proportion in control than did the others.

Consequently, overall it did seem that a very important factor, in this case an educational variable, was identified. It was shown that if physicians receive special tutorials in hypertensive patient care, it is possible to help the patient improve his knowledge and understanding of this disease, improve his compliance behavior, and finally achieve greater success in blood pressure control.

This study is an excellent example of the philosophy described by the cybernetic of identifying the problem, identifying the determinants attempting a solution, and reassessing to identify whether improvement has been effected.

In this study we do not assess the final health outcomes, death and morbidity. Instead it is necessary to rely on the results of controlled clinical trials, such as the one conducted by Edward Fries, to provide the needed correlational relationships. With the intermediate outcome of blood pressure, a measurable end point is available that illustrates the kind of end

points to be measured in other conditions. The major requirement, however, is evidence of efficacy of medical care interventions.

The third part of this paper examines the organizational system that we are experimenting with called the health accounting system. It aims to make practical the application of outcome assessment principles to quality assurance.

Thus far the system has been developed in both hospitals and clinics. Work has not yet been started with solo practitioners: that will be the next area for study.

In the following example it will be assumed that a quality assurance system based on outcome assessment is to be developed in a clinic or hospital.

First, a quality assurance board of directors has to be organized. This group will include physicians, administrators and consumers. Their function will be policy-making and approval of all the major steps taken in the development and function of the system. For example, they will supervise approval of the areas to be studied, the criteria and standards to be applied, the degree of effort to be invested in further analysis of the determinants of problems identified and, finally, the degree of effort to be applied to effect improvement where it is possible. Note that most of these factors involve value judgments.

The quality assurance supervisor is a physician who is on the staff of the hospital or clinic who is willing to give up to 10 percent of his time to direct the program. This person can be a generalist or a member of any specialty. One of the first quality assurance supervisors was a pathologist. The main qualifications are interest in quality assurance activities and willingness to provide time.

The key person in this system is the Health Accountant. A variety of people have filled this role, ranging from those just out of high school to those having a master's degree. The ones who seem to be working most successfully and who are most content in their jobs are those who have one or two years of college education. There are some notable exceptions, however. The Health Accountant provides a 100 percent effort in this project. He does the data collection as approved by the quality assurance supervisor: this could mean following up over 100 patients in a phone survey or going out to their homes to obtain blood pressure readings. Consequently, this job requires someone who

is personable and able to get along with both the physician and the patient. He had to have had previous job experience attesting to his inductive skills, his problem-solving ability, and his ability to work on his own.

The Health Accountants that have been employed to date have been so successful that 12 of 13 currently employed will be maintained as employees of the clinics no matter what happens to present federal monetary support of their salaries.

The next requirement of this approach is a priority team. These people are experts in understanding the problems of the hospital (or clinic) and the patient population. This group will identify those areas where quality assessment effort might result in the greatest benefit in terms of health improvement or cost containment per project period. This group will meet one time: formal procedures have been developed to facilitate their function. In the course of one to two hours, we hope that by using these procedures they can identify problems that will encompass the most attainable benefit (health or economic) not being attained. It is recommended that two separate priority lists be developed, one related to cost benefit and the other to health benefit. Both areas will be studied simultaneously. These priorities represent a list of project hypotheses to be tested. It is important to stress that these priorities are *not* based on percentage deviations from some empiric mean of utilization or claims review curve. These projects usually focus on patients who fall in the middle of those bell shaped curves. The assumption is that patients in the tails of such curves (those studied by traditional peer review) encompass little attainable benefit not being attained. The research by Gertman *et al.* and by Brook seems to confirm this assumption.

Having identified the study topic, such as hypertension or intravenous pyelogram utilization, a special team of qualified professionals must be identified to work on the problem. Each of these teams will then carry out their respective studies. These teams meet only once or twice for an hour or two, to complete a study; because most of the work is done by the Health Accountant. The team has to finalize the study design and analyze the final report written by the supervisor and the Health Accountant to see if it seems methodologically sound and ready to go to the Quality Assurance Board of Directors.

In summary, the system works in this way: the priority team identifies a group of problems to be studied, in order of priority, and a quality assessment outcome study is conducted on each to identify potential problems to be studied in whatever depth the Quality Assurance Board decides is warranted for that problem. It is when areas of care are found that can be improved, areas where subsequent effort might make a difference to the patient or to the costs involved, that this quality achievement team takes over. This group may be the same as the assessment team, but many times different types of talent are required to solve a problem than were needed to identify the problem in the first place. Finally, a cybernetic function is established for identifying the problem, attempting a solution, and then evaluating if, indeed, the solution was effective. This is done in two areas, effectiveness, where the primary emphasis is improvement of patient health, and efficiency, where the emphasis is mainly the reduction of dollar, time and scarce resource utilization. Between those two poles are the utilization studies, which have to do with such things as unnecessary operations, hospitalization and medication. Here you have to establish "unnecessary" as a critical judgment. These problem areas have both health and financial implications. They fall within either or both effectiveness or efficiency priority lists depending on their potential impact. The results of our experiences to date have been quite interesting. We have found that the approach has proven feasible.

The fact that 12 out of 13 clinics will take on the major cost burden of this approach, i.e., the salary of the Health Accountants and supplement of the quality assurance supervisors, seems to indicate that practicality has been demonstrated by at least suggestive evidence. We can look at some of the results from the studies. In one clinic the diabetic case fatality rate was five times higher than their maximum acceptable standard. In another the endarterectomy death rate was three times higher than their maximum acceptable standard. Urinary tract infection studies in three clinics revealed as many as 25 percent receiving care not needed and 80 percent suffering from needed care not given. Both findings were much greater than their maximum acceptable standards.

In another clinic study of the use of penicillin over 80 percent of use was not supported by

chart data; this was many times higher than the maximum acceptable standard.

Serious underutilization of electrocardiograms was found in one clinic. In another clinic we found a serious overutilization of intravenous pyelograms; the cost outcomes involved in improving these practices in both clinics are being worked out with the administrators.

In one hospital coronary care unit, a two week post admission case fatality rate of 28 percent was almost double the maximum acceptable. In another hospital, the one year follow-up revealed twice as many "out of work" than maximum acceptable standards would allow.

In most of these studies serious problems have been identified. There are three where it is possible to report subsequent quality achievement effort.

The first was most interesting. In the case of endarterectomy, the physicians were not interested in identifying whether there were correctable determinants of these deaths. They just said, "They were old people; it was to be expected." They seemed to brush it off. National experts were contacted by the study team. It appeared that the small rural clinic in the Midwest was doing many times more of these operations than were being done at Johns Hopkins in the same period of time. The indications for endarterectomy were studied. The experts claimed that unless certain limited indications for surgery were followed, the results could include premature post-surgical death.

We had a recent evaluation conference, and the physician quality assurance director of the clinic reported, "Even though they haven't done anything, the number of endarterectomies seems to be falling." The indications used by the clinic doctors for performing this operative procedure seem to be changing.

Next, to improve diagnostic results in the urinary tract infection in another clinic the Quality Assurance Board called a special meeting. The staff was unable to accept the results of the assessment, which indicated rather serious problems.

Yet within a month they had another board meeting, and it was decided they should reorganize their approach to the handling of urinary tract infections in this clinic.

In the final example, in the hospital coronary care unit where such a high two week case fa-

tality rate was found, the staff was willing to study the determinants of this unacceptable outcome. Here, the problem proved to be organo-medical: use of lidocaine and fluid and electrolytes was far from optimal. Seminars were provided, although follow-up assessment revealed no improvement. Alteration of the educational approach, using personal tutorials, was tried next. Within three months a follow-up outcome measure revealed the case fatality rate had dropped 50 percent.

Although the overall system seems to be working well, there are a lot of things to be learned, especially about motivating clinic and hospital interest in quality assurance using the outcome approach.

Overall, there is no question that the future of the quality assurance field seems to be bright, particularly because of Professional Standards Review Organizations. There is not much indication, however, that outcome assessment is going to be a part of this picture in the near future. Even though it is incorporated in HMO bills both in the House and Senate, and although the Quality Assurance Commission proposal incorporated the outcome approach, it is uncertain that the quality assurance approach will survive when these bills go to conference.

At the present time the major interest is in cost containment. The practicality and ease of applying the concept perhaps is appealing enough to conceal the basic danger in these programs of possibly introducing even more unnecessary medical intervention accepted by peers but unproven by evidence of efficacy. In addition, initiating assessment entirely in the organic medical branch of the logic tree of outcome determinants precludes the large number of factors not in a chart or claims form.

The final section of this paper will focus on our own activity to develop quality assurance resources.

The first is the Health and Cost Benefit Analysis Project. These studies involve methods of developing cost benefit analyses by using groups of experts to estimate the health benefits and estimate the cost factors that are related to a particular health problem.

The most recent study concerned stroke patients in the three state area of Minnesota and North and South Dakota. It involved such factors as income loss, how much health improvement is possible, and how much more it would cost to achieve the health improve-

ment. This method is based on using as much hard data as we have available and then using the experts to estimate beyond this, especially as related to the health benefit side.

Next is the bibliography we are developing. We have already developed a selective Health Services Research Bibliography that covers quality assurance. Also contained is a list of the six annotated bibliographies in the field of quality assurance. This bibliography can serve as an interim volume until our more complete bibliography, entitled "Assessing the Effectiveness and Efficiency of Medical Care: An Annotated Bibliography and Attribute Index," is published. This volume will cover much of the quality assurance literature from 1900 to 1973: nearly 3,000 citations have been accumulated. An attribute coding system is being developed to overcome present problems of indexing; it will include over 200 attributes. Each article is coded for any of these attributes that are applicable. For example, code 52 indicates assessment articles in which hospital administrators might be interested. By interpreting these codes it is possible to identify all articles that deal with a problem of outcome assessment, using empiric criteria, focusing on medical care of poverty populations, with children age 2 to 12 with cardiovascular disease. We hope to have this annotated bibliography out this fall. It will also be on computer tape as well as in printed form because it seems to be a natural for Medline type of distribution by the National Library of Medicine. In this case, one could just key in the particular attributes required and it would print out the citations and the full abstracts of relevant articles.

In conclusion, one final point should be stressed. This paper does not advocate any one method of quality assessment alone. It does claim that the outcome approach is the most direct way of identifying areas for study and establishing which assessment methods would be most productive for a detailed study of those areas in the care system where effort might achieve improvement in either the health of the patients or in resource utilization.

CHAIRMAN SHORTELL: Dr. Williamson mentioned six annotated bibliographies. There are now seven, because in conjunction with this symposium we have put together a seventh which basically summarizes studies from about 1968 to the beginning of 1973. It will appear in the published proceedings.

Quality of Care Assessment: What Is the Most Appropriate Method for Peer Review?

ROBERT BROOK, M.D.

CHAIRMAN SHORTELL: Our first speaker this afternoon is Dr. Robert Brook. Dr. Brook is currently a Medical Officer with the United States Public Health Service, associated with the National Center for Health Services Research and Development. He is a student of John Williamson's and has done considerable work on measuring and relating process and outcome indicators of quality of care. Essentially, under what circumstances and with what types of conditions does the process of rendering medical care affect the outcome in terms of the health status of the patient?

DR. BROOK: In the last few years the volume, eloquence, and sophistication of the public debate concerning the adequacy of personal health services given in the United States has increased. Part of this debate centers around the cost-quality trade-off dilemma which can be stated in either of two extremes: (1) to maximize the quality of care in the most efficient manner, or (2) to contain the costs of personal health services at the present level without undue dilution of the quality of care. On the one hand, public concern about the quality of care can be seen in newspaper stories about the lack of family physicians, the lack of expensive rapid transportation systems for patients injured in accidents, and in the glorification of modern medicine and its accompanying technology as illustrated by coronary care units, open-heart surgery, acute respiratory care units, organ transplantation, renal dialysis, and coronary bypass surgery. On the other hand, the public also appears to be concerned about rapidly increasing costs of personal health services. Currently there are public discussions about the effectiveness of these modern achievements and some realization of the economic consequences of them. For example, it is not economically feasible to have a plastic surgeon suture every

superficial laceration instead of an allied health worker, even if the scar produced by the plastic surgeon is slightly less than that produced by the allied health worker.

Considering (1) the seriousness of the cost-quality problem, and (2) that the audience for which this paper has been written is composed of graduates of the Center for Health Administration Studies, many of whom are hospital administrators, the product of this paper should have been a short, optimistic discussion extolling the virtues of assessing and assuring the quality of care and urging this audience to get on with the task at hand. This paper should have expressed the idea that upon completion of this arduous task, society would recognize its value and offer appropriate rewards. This is especially pertinent to this audience since the hospital administrator has both the responsibility for assuring the quality of the care rendered to patients confined in his hospital and the authority and leadership ability to alter, when appropriate, the level of quality of care rendered. Many, if not most, of the deficiencies in quality of care delivered by hospitals may require alteration of the hospital environment, the type of services delivered in a hospital, or the number and type of hospitals in a region instead of modification of physician's behavior in treating a specific patient in a given hospital.

These alterations which may involve the following difficult tasks are: (1) changing the relationship between nurses, physicians, and hospital administrators, and (2) agreeing to the concept that the responsibility of a hospital is not confined to the patients who seek services at its doors, but to the community in which the hospital exists. It will be impossible to accomplish these alterations without enlisting the creative talents and support of hospital administrators. In attempting to alter the level of quality of care provided, the hospital administrator will be forced to take definite

risks and make suggestions which may fundamentally alter hospital care.

However, the findings from the research study that I will present today are not conducive to such an optimistic presentation, which would urge the adoption of a specific quality assurance system. Instead, they emphasize the fundamental problems associated with quality assessment. This paper could be used as a weapon to justify delay in the implementation of any quality assurance program. However, I hope that this is not the case, but instead that research results in quality assurance will be incorporated into operational quality assurance programs in a manner which will increase the utility of these programs.

The purpose of this research study was to compare five peer review methods, in terms of validity and reliability, in assessing the quality of care for three groups of patients. The types of questions this study was designed to answer concerned: What type of data should be collected to assess quality of care and who, i.e., specialists, generalists, and/or consumers, should set the criteria and standards which determine adequate medical care quality. The relevance and perhaps importance of this type of study can be illustrated by work from two other fields, economics and sociology. Walton [2] reviewed the entire literature of 29 case studies relating to the distribution of power in communities. He found that two different professional groups, sociologists and political scientists, had performed these studies, using two different methods for information collection. Walton's analysis of the data suggested that a causal chain existed between the orientation of the person who did the study, the method used, and the result obtained. The result was not independent of the method or the person doing the study. Will the same situation exist in quality assessment? Will examination of different data, such as what a physician does versus what happens to the patient, produce a different set of answers concerning the level of quality of care? Will the choice of the method to assess quality of care be dependent upon the background of the person doing the study?

Writing about similar concerns in the field of economics, Galbraith states:

Economic goals are also strongly, if not always visibly supported by vested interest. The prestige of important groups in the community depends on the priority accorded to their function. If nothing is so important as production, no one is as important as the producer—the businessman.

If other goals take precedence, so do other people. The importance of economic goals for the prestige of the economist needs scarcely to be emphasized. Economic goals also serve vested interest in a very practical way. For if such goals take precedence, public questions will be decided according to economic tests. These are much less complicated than other tests. A road can be cut through a park, the countryside turned over to industry, waste turned into the air or a lake, a welfare measure rejected, a change in work habits commanded, all on a simple showing of a beneficial economic effect. This is a great simplification. To validate non-economic goals is to risk a very different decision with different benefits and beneficiaries. Finally, economic goals remain important for the vacuum they fill. A society must have a purpose. A highly tangible purpose is to produce goods for private consumption. The annual increase in this production can be measured. The result can be taken as an index of national vigor and success. This is the measure we now employ [3].

When we assess the quality of care, will we emphasize those things that are easy to measure such as the number of laboratory tests performed as opposed to factors such as patient education, and the ability of a physician to properly reassure a patient and relieve his anxieties? Will the development of a quality assessment system only further alter and perhaps destroy that part of the physician's role relating to the art of medicine by measuring only the objective scientific and technical aspects of the care he provides? Certainly, as Galbraith states, those things that are measured will be unduly emphasized over those things that are not measured.

Returning to the study concerning the assessment of quality of care which was previously mentioned, this present paper will meticulously summarize the purpose, methods, and results of that study and then will interpret these results in terms of the possible role of the hospital administrator in assuring the quality of hospital care.

The purpose of this study was* to compare five different peer review methods of assessing medical care quality: an implicit judgment of process; an implicit judgment of outcome; an implicit judgment of process and outcome combined (quality of care judgment); an explicit judgment of process; and an explicit judgment of outcome (estimation of group outcome).

Process includes what a physician does on

* This study including many of the tables and figures has been published in *N Engl J Med* 288:1323-1329, 1973. Since much of the content of the text and illustrations has not been altered in this paper, permission to reproduce this material has been obtained from the editor of this Journal.

behalf of a patient (diagnostic investigations and therapeutic interventions), the sources of medical care, and patient compliance.

Outcome comprises the results of care—i.e., patient response in terms of mortality, symptoms, ability to work or perform daily activities, and physiologic measurements.

Implicit judgments rely on the subjective opinion of the individual judge: no predetermined criteria are used. Explicit judgments rely on predetermined criteria set by group agreement.

The study was conducted at the Baltimore City Hospitals. Patients were selected for the study if they had one of three medical conditions—urinary-tract infection, hypertension, or an ulcerated lesion in the stomach or duodenum (including possible gastric carcinoma)—and the quality of their care was evaluated by each of the five methods. Each condition was identified. For urinary-tract infection the bacteriology laboratory's files were used to identify all patients 15 years of age or older who had been in the emergency room from January 1 to May 15, 1971, and who had a clean-catch urine culture indicating a growth of pathogenic bacteria equivalent to 100,000 colonies per milliliter. To identify hypertension, records of all patients seen in the emergency room were reviewed daily from January 1 to April 30, 1971, and a list was compiled of all such patients who had a diastolic blood pressure reading greater than or equal to 115. For ulcerated lesions of the stomach or duodenum, from the x-ray department's records, a list was compiled of all patients examined between January 1 and May 15, 1971, whose x-ray films showed either an ulcerated lesion in the stomach, a duodenal ulcer or chronic changes consistent with peptic-ulcer disease.

METHODS

Part 1—The Three Implicit Methods

For the three implicit methods (the implicit judgments of process, of outcome, and of process and outcome combined) the physicians acting as judges read a detailed two-page abstract of each case. Information for the abstract was collected by a review of each patient's record combined with a patient interview, both of which were completed five months after the initial emergency room visit or x-ray examination. The abstract contained all of the information in the medical record relevant to

a decision concerning the quality of the care received by the patient. The patient interview was conducted to determine patient compliance and condition at the end of the follow-up period (patient outcome) and to verify the use of other medical services.

The physicians who served as judges were faculty members at the Baltimore City Hospitals for at least one year before the study began, had positions equivalent to assistant chief in the Department of Medicine, and were involved in acute patient care. Ten physicians met these qualifications, and all agreed to participate in all five assessment methods.

The first page of the abstract contained both background information, such as demographic data, relevant past history, presenting complaint, physical examination and diagnosis, and medical care process data for the five-month study period. The second page contained the outcome data also abstracted and summarized. The two pages of the abstract were connected by a seal.

On the basis of the information provided on the first page of the abstract, each of three physicians, who were selected from the 10 by a table of random numbers, decided whether the medical care process was adequate or inadequate. The judgment was global, and the only instruction the physicians received was that only the processes likely to be of major help in producing an outcome beneficial to the patient should be considered—e.g., treating a hypertensive patient with antihypertensive medication. This decision was the implicit-process judgment.

The physician then broke the seal, read the data about the patient's outcome and answered three additional questions. The first was whether the outcome experienced by this patient could have been improved if the medical care process had been better. This evaluation was the implicit-outcome judgment. Secondly, was the quality of the care received by this patient acceptable or unacceptable? This evaluation, based on reading both the process and the outcome data, was the implicit quality of care judgment. Finally, if the care was unacceptable, was this the fault of the patient or of the medical care system? When the three physicians disagreed, a case was rated adequate if two of the three considered it adequate.

Part 2—The Two Explicit Methods

To make explicit process judgments, criteria were first developed. For each of the three medical conditions the 10 physicians were asked to select the criteria that were necessary to provide good care and that were likely to have an important effect on outcome. For this method only, a second group of physicians, in addition to the group previously described, was picked.

The second group, selected from the faculty at Johns Hopkins Hospital, consisted of a subgroup of seven specialists for each of the three conditions studied. Criteria selected by at least five of the seven physicians were applied by the study team to each case to obtain an explicit-process judgment.

Estimations of group outcome are a means of developing criteria to make an explicit-outcome judgment. Physicians state what they think various patient outcomes—e.g., blood-pressure control—should be for groups of patients with specific medical conditions within a given time after treatment. The actual level of control experienced by the patients is then compared to what the physicians defined as acceptable. This assessment proceeded as follows: patients with each medical condition were divided into groups based on characteristics

likely to affect prognosis (e.g., age for hypertensive patients); and for each of the patient outcomes measured, such as blood-pressure control, the physicians were asked to estimate for each group of patients the number of patients expected to have uncontrolled blood pressure after five months if the entire group of patients received no therapy, received therapy currently being provided at the institution, and received adequate therapy. These estimates were then compared to the patient outcomes, such as blood-pressure level, measured by the study team.

These five methods all involve peer review and have been used as measurements of quality of care. They differ, however, either in the technique or in the data used as a basis to form the peer judgment. (A more detailed description of the methods and lists of the criteria used is given elsewhere [1, 4].)

RESULTS

Part 1—The Study Population

Initially, 304 patients (112 with a urinary-tract infection, 117 with hypertension, and 75 with an ulcerated lesion in the stomach or duodenum) were included. The medical record

TABLE 1
DISTRIBUTION OF OBSERVED PATIENT OUTCOMES AFTER A FIVE MONTH FOLLOW-UP PERIOD BY CONDITION

Outcomes*	CONDITION							
	Urinary Tract Infections		Hypertension		Ulcerated Lesion in Stomach or Duodenum		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Patients.....	107	100	114	100	75	100	296	100
1. Died.....	1	0.9	1	0.9	1	1.3	3	1.0
2. Decreased Activity.....	28	26.2	27	23.7	31	41.3	86	29.1
3. Continued Symptoms.....	56	52.3	47	41.2	46	61.3	149	50.3

4. Physiologic Measurement

a) For patients with urinary tract infections: Results of clean catch urine culture at end of study period:

	Number	Percent
Total Patients Alive.....	106	100
1. <25,000 col/ml.....	54	50.9
2. ≥25,000, <50,000 col/ml..	14	13.2
3. 50,000, <100,000 col/ml..	4	3.8
4. ≥100,000 col/ml.....	34	32.1

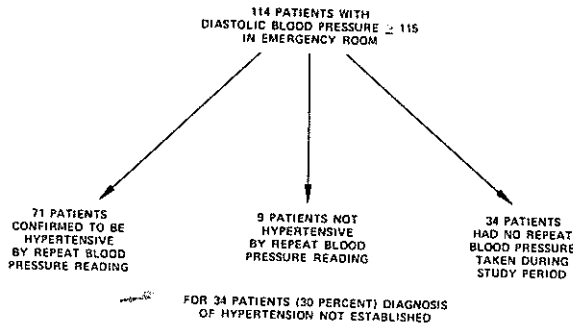
b) For patients with hypertension: Control of blood pressure at end of study period†:

	Number	Percent
Total Patients Alive.....	113	100
1. Blood Pressure Controlled.....	63	55.8
2. Blood Pressure Not Controlled..	50	44.2

* Outcome Categories 2, 3, 4 are not mutually exclusive.

† Blood pressure control is defined as follows: For patients ≥39 years of age, blood pressure value at end of study period must be ≥150/95; for patients 40-59 years of age, value must be ≥160/100; for patients <59 years of age value must be ≥170/105.

FIGURE 1
DIAGNOSTIC PROCESS FOR HYPERTENSIVE PATIENTS



was abstracted for 303 (99.7 percent) of these patients, and a patient interview was completed with 297 patients (97.7 percent). Complete data were collected on 296 patients (97.4 percent), and only these patients were included in the final study.

Part 2—General Description of the Medical Care Provided

At the end of the five-month study period, 50 (44 percent) of the 113 hypertensive patients who were still alive had uncontrolled blood pressure (see Table 1). Thirty-four patients (30 percent) did not have a repeat blood-pressure reading taken during the study period to determine whether or not they had sustained diastolic hypertension (Fig. 1). Simple tests, such as determinations of potassium and serum urea nitrogen and electrocardiography, were performed for approximately 90 percent of the 71 patients confirmed as hypertensive, and 60 percent of these patients had rapid-sequence

TABLE 2
SELECTED PROCESS CRITERIA FOR PATIENTS WITH SUSTAINED HYPERTENSION

	PATIENTS APPLICABLE*	PATIENTS MET	PERCENT MET
Electrocardiogram	68	59	87
Chest x-ray	68	56	82
Sun or Creatinine	68	62	91
Urine Analysis	68	49	72
Sodium	68	60	88
Potassium	68	60	88
Either VMA or Catecholamines	68	26	38
Uric Acid	68	34	50
Cholesterol	68	24	35
Hypertensive IVP	68	41	60
Carbon Dioxide	68	59	87
Fasting Blood Sugar	68	61	90
Post-Prandial Blood Sugar	68	4	6

* Data incomplete for three patients.

intravenous pyelography (Table 2). No case of surgically correctable hypertensive disease was identified. The three major problems occurring in the treatment of the 71 patients who were determined to have sustained hypertension were insufficient follow-up care, noncompliance with medication, and inadequate adjustment of the drug dosage (Fig. 2). Fifteen of 31 patients who did not receive any follow-up

FIGURE 2
THERAPEUTIC PROCESS FOR HYPERTENSIVE PATIENTS (PART 1)

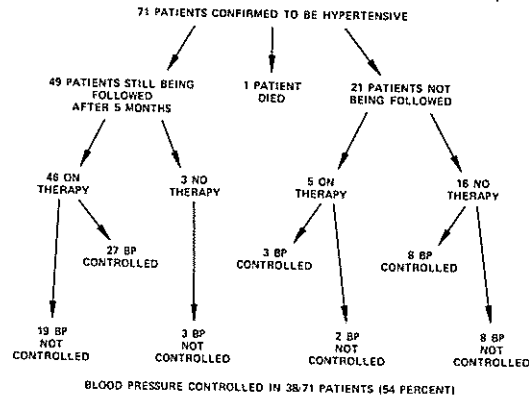


FIGURE 3
THERAPEUTIC PROCESS FOR HYPERTENSIVE PATIENTS (PART 2)

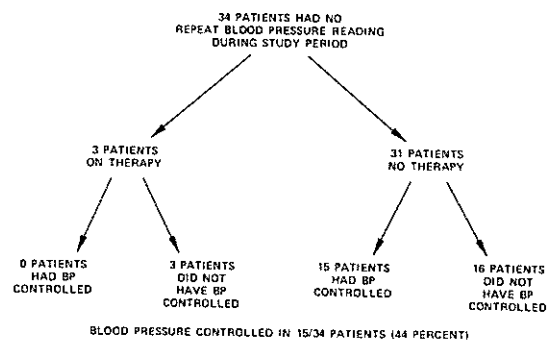


FIGURE 4
THERAPEUTIC PROCESS FOR HYPERTENSIVE PATIENTS (PART 3)

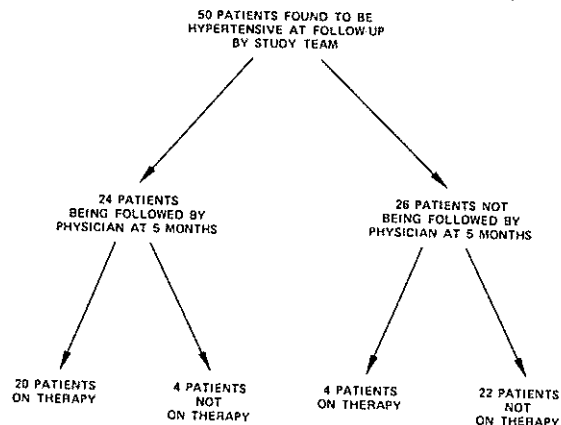
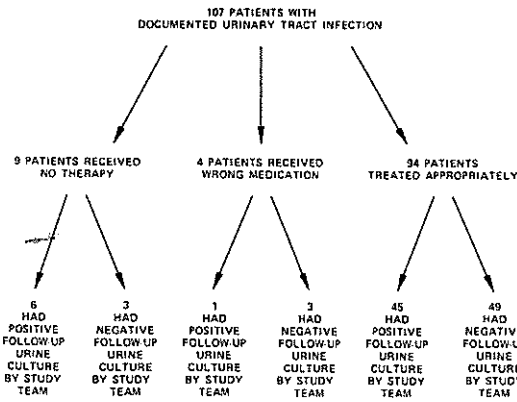


FIGURE 5
THERAPEUTIC PROCESS OF PATIENTS WITH A URINARY TRACT INFECTION (PART 1)



care or therapy had a normal blood pressure reading at the end of the study period (Fig. 3). Fifty patients were still hypertensive at the end of the study period (Fig. 4). For only one patient was it apparent that the lack of pharmaceutical control was due to the nature of the disease. These data suggest that in this institution emphasis was on discovering underlying causes of hypertension, such as primary aldosteronism or unilateral renal disease, rather than on developing an environment conducive to long-term control.

Initial antibiotic therapy was appropriate for 94 of the 107 patients with a urinary-tract infection (Fig. 5); however, diagnostic procedures, such as intravenous pyelography, were performed in less than 50 percent of the cases in

TABLE 3
SELECTED THERAPEUTIC AND DIAGNOSTIC PROCESS CRITERIA FOR PATIENTS WITH A URINARY TRACT INFECTION

	PATIENTS APPLICABLE*	PATIENTS MET	PERCENT MET
1. Serum Creatinine.....	107	43	40
2. At Least One Follow-Up Physician Visit.....	107	45	42
3. Repeat Urine Analysis After Antibiotic Course Finished.....	98	16	16
4. Repeat Urine Culture After Antibiotic Course Finished.....	98	10	10
5. Patient Took Antibiotics for at Least 10 Days.....	98	75	77
6. Intravenous Pyelogram...	67	33	49
7. Cystoscopy.....	68	12	18
8. Repeat Urine Culture within 2 Days if Initial Culture Shows Bacteria Not Sensitive to Initial Antibiotic.....	60	11	18

which they were indicated (Table 3). No cases of surgically correctable genitourinary disease were found. For 60 patients (61.2 percent) the initial urine-culture sensitivities indicated that the bacteria were resistant to the antibiotic originally chosen. In only 11 cases was the patient then questioned to determine progression of the disease, and in only one case was the antibiotic changed. The urine of 10 of the 98 patients who were initially treated with an antibiotic was re-cultured. For only two of the 52 patients who were found by the study team to have a positive or questionably positive culture at the end of the study period were the physicians responsible for their care aware of this continuing infection (Fig. 6). Again, initial medical care was appropriate, but follow-up care was deficient.

In general, acute hospital care for patients with complications of ulcer disease was excellent; however, at the end of the study period, 61 percent of the patients with an ulcerated lesion were still symptomatic. Twenty-eight of the 75 patients were treated with either antacids four times daily or a six-feeding diet (or both) (Table 4, Fig. 7), and surgery was performed for two of the five patients with a possible malignant gastric ulcer. Of the 45 patients who were found by the study team to be symptomatic at the end of the study period, 20 had appointments to be seen again, and 19 were taking some type of ulcer medication. Lack of continuing care is again evident.

Part 3—Implicit-Process Judgment, Implicit-Outcome Judgment, and the Implicit Process and Outcome Judgment Combined (Quality of Care Judgment)

If the medical care process is considered

FIGURE 6
THERAPEUTIC PROCESS FOR PATIENTS WITH A URINARY TRACT INFECTION (PART 2)

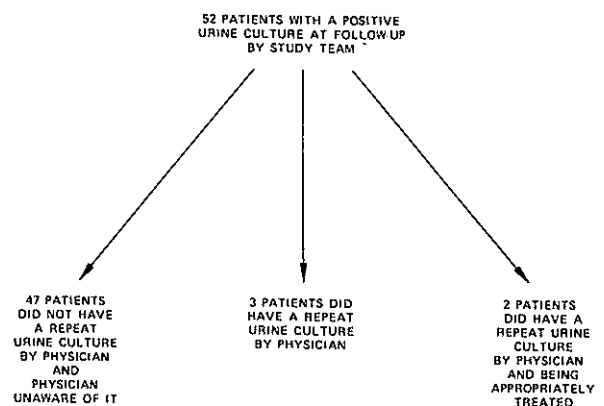


TABLE 4
SELECTED DIAGNOSTIC TEST AND THERAPEUTIC PROCESS
CRITERIA FOR PATIENTS WITH AN ULCERATED LESION
IN THE STOMACH OR DUODENUM

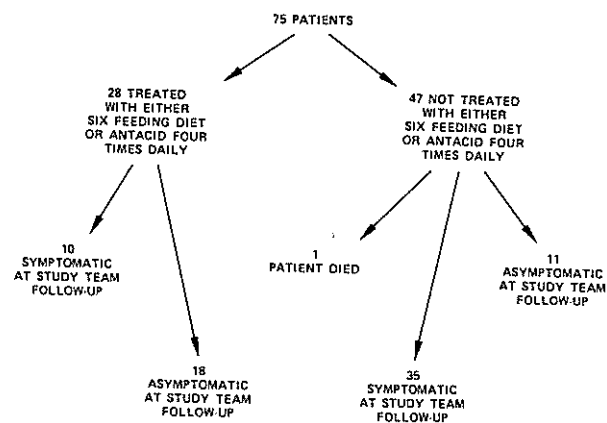
	PATIENTS APPLI-CABLE*	PATIENTS MET	PERCENT MET
1. Hematocrit.....	75	57	76
2. Guaiac.....	75	43	57
3. Antacids Every 2 Hours While Awake Until Asymptomatic.....	67	20	30
4. Six Feeding Diet.....	75	13	17
5. Six Feeding Diet or Antacids Four Times Daily.....	75	28	37
6. Repeat Upper Gastrointestinal Series within Four Months.....	57	10	18
7. While Symptomatic Patient Must be Seen Monthly.....	57	14	25
8. Surgery Must be Performed for Possible Malignant Ulcer.....	5	2	40
9. Patient with Gastric Ulcer Must have Repeat Upper Gastrointestinal Series Within Six Weeks.....	18	8	44

judges for 27.1 percent of the cases (Table 6, row 3, columns 1 and 2).

The validity of these judgments is difficult to determine. Satisfactory conclusions probably await controlled clinical trials. In lieu of such data, an impression of the validity of the implicit judgments can be obtained by comparison of the process judgment with the actual patient outcomes measured by the study team. It would be expected, if the process judgment had some innate validity, that the cases judged to have inadequate process would suffer a poorer outcome. A significant relation ($p \leq 0.05$) was found between the adequacy of medical care process and the result of follow-up urine culture (i.e., patients with inadequate process were more likely to have a positive follow-up culture). A similar positive relation was observed between the process judgment and the results of the follow-up blood-pressure reading. Positive nonsignificant relations were found in all but one of the other comparisons relating the process judgment to other outcomes, such as activity and symptom levels. These data demonstrate a questionable relation between the process judgment and actual outcome measurement. This relation might have been considerably better if the process judgments had not been so stringent.

FIGURE 7

THERAPEUTIC PROCESS AND OUTCOME FOR PATIENTS WITH AN ULCERATED LESION IN THE STOMACH OR DUODENUM



adequate when at least two out of the three judges rated it as such, 23.3 percent of the patients had an adequate medical care process (Table 5, row 4, columns 1 and 2). The adequacy of the medical care process varied according to disease, patients with urinary-tract infection being judged as receiving the poorest care (Table 5). At least two judges thought that outcome was unimprovable in 63.2 percent of the cases (Table 6, row 2, columns 1 and 2). Quality of care was judged acceptable by at least two

Part 4—Explicit-Process Evaluation

Four of the 296 cases (1.4 percent) met all the explicit-process criteria agreed upon by two-thirds of the Baltimore City Hospitals physicians; six cases (2 percent) met all the criteria similarly agreed upon by the Johns Hopkins Hospital specialty teams (no significant difference). The same number of criteria were not applied to all cases in each condition, since the questionnaires used to elicit these criteria were branched, and patients were classified into subgroups. For patients with a urinary-tract infection a different list of criteria was devised for males versus females, for those with a previous history of urinary-tract infection versus those without evidence of a previous infection, etc. The mean number of criteria applied to the cases of urinary-tract infection was 13.5, to the hypertension cases 18.1, and to the ulcerated-lesion cases 15.2. For each condition the mean percentages of criteria fulfilled were 52, 58 and 35 respectively.

TABLE 5
SUMMARY OF PROCESS JUDGMENTS FOR ALL CASES BY CONDITION

CONDITION	PROCESS JUDGMENT								Total
	Adequate by All Three Judges		Adequate by Two Judges		Inadequate by Two Judges		Inadequate by All Three Judges		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Urinary Tract Infection.....	2	1.9	11	10.3	17	15.9	77	72.0	107
Hypertension.....	19	16.7	12	10.5	29	25.4	54	47.4	114
Ulcerated Lesion in Stomach or Duodenum.....	8	10.7	17	22.7	12	16.0	38	50.7	75
Total.....	29	9.8	40	13.5	58	19.6	169	57.0	296

TABLE 6
SUMMARY OF IMPLICIT JUDGMENTS FOR ALL CASES

IMPLICIT JUDGMENT	RESULTS								Total
	Positive* by Three Judges		Positive by Two Judges		Negative† by Two Judges		Negative by Three Judges		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Process Judgment.....	29	9.8	40	13.5	58	19.6	169	57.0	296
Outcome Judgment.....	135	45.6	52	17.6	33	11.1	76	25.7	296
Quality of Care Judgment.....	31	10.5	49	16.6	88	29.7	128	43.2	296

* Positive refers to either adequate process, unimprovable outcome or acceptable quality of care.

† Negative refers to either inadequate process, improvable outcome or unacceptable quality of care.

Part 5—Explicit-Outcome Evaluation (Estimation of Group Outcome)

Estimates of group outcomes were obtained for four outcomes for urinary-tract infection, three for hypertension, and three for ulcerated lesion (a total of 10). These outcomes were as follows: mortality and decreased activity for each condition; continued symptoms for patients with a urinary-tract infection or an ulcerated lesion; and urine-culture results for patients with a urinary-tract infection or a blood-pressure level for patients with hypertension. All the estimates, except for blood-pressure level and urine-culture results, proved unusable, either because of small numbers (e.g., mortality) or because the observed outcomes were worse than the physicians estimated they would be if the patients received no therapy. For example, the physicians estimated that 45 of the 75 patients with ulcers

would still be experiencing symptoms after five months if they received no therapy, and that 25 patients would be experiencing symptoms under present therapy; however, the study team found that 46 patients were still experiencing ulcer symptoms. Analysis of the blood-pressure and urine-culture data permitted an evaluation of quality of care according to the formula:

$$\text{Percentage of patients receiving adequate care} = \frac{\text{observed value} - \text{lower limit of the range}}{\text{range}} \times 100$$

The value of the range for each outcome measure was defined as the difference between the value estimated if the patients received adequate therapy minus the value estimated if they received no therapy. By this formula, 40 percent of the patients with urinary-tract infections and 44 percent of those with hypertension had acceptable care.

Part 6—Comparison of the Five Methods for Assessing Quality of Care

Previous work in the area of quality assessment has emphasized medical process; however, major differences were found in this study between the methods using process data and those using outcome data. It is apparent that the results of the quality assessment were determined by the method used. The findings ranged from 1.4 to 63.2 percent of the cases in which care was acceptable (see Table 7).

Conclusions and Possible Implications for Hospital Administrators

The most important implication of the previous research study is that the results of efforts to assess quality of care are substantially dependent upon the method used to assess it. The method which is currently in vogue, assessment of quality of care based upon explicit process criteria, is likely to produce the most stringent judgment of quality of care. The use and acceptance of this method is likely to double if not triple the number of personal health services provided without substantially improving the health of the American people. Thus, the result of the admirable intention of both physicians and the general public to raise the level of quality of care by assessing the process of that care may have dire economic consequences and actually lower the health level of the population by directing money away from other social needs such as housing into medical care

processes which are only thought to have an effect on health level.

Evidence to support this rather counter-intuitive statement is available from a few studies in the British literature. The British have used the experimental randomized controlled clinic trial as opposed to judgment based on peer review in an effort to assess the quality of care by examining the relationship between a variety of medical care processes and patient outcomes. Three studies are of particular importance. One study showed that a large percentage of patients with an acute heart attack can be treated just as successfully at home, in terms of subsequent morbidity and mortality, than in a coronary care unit, and at a fraction of the cost [5]. A second study showed that patients suffering from varicose veins achieved just as satisfactory cosmetic results with lower morbidity and mortality at a significantly lower cost when an outpatient procedure was used as opposed to a complicated inpatient procedure [6, 7]. The third study which has yet to be published suggests that patients recuperating from a hernia operation can be discharged perhaps as soon as one day post-operation without increasing morbidity or mortality.

Peer review methods based on explicit process criteria, which may in the near future be employed routinely in the United States, never would have arrived at criteria for good care which were compatible with the three studies listed above. Instead, process criteria consistent with good care would probably have required: (1) physicians to hospitalize patients with a suspected heart attack preferably in a coronary care unit; (2) patients recovering from a routine hernia operation to stay in the hospital longer than one day postoperation; and (3) physicians to perform an in-hospital operation for patients with varicose veins.

The message then becomes rather clear. There is a strong tendency for any system of quality assessment based on explicit process criteria established by peer judgment to require many more medical services than can be substantiated by rigorous experimental studies. This counter-intuitive effect of justifying and proliferating unnecessary medical services on the basis of increasing the quality of care must be contained by the rapid and careful development of research studies, which using experimental designs test the validity and reliability

TABLE 7

SUMMARY OF THE ASSESSMENT OF QUALITY OF CARE AS MEASURED BY EACH OF THE FIVE METHODS STUDIED FOR ALL 296 CASES

METHOD	RESULTS: ACCEPTABLE QUALITY OF CARE	
	Number	Percent
1. Implicit Process Judgment.....	69	23.3
2. Implicit Outcome Judgment.....	187	63.2
3. Implicit Quality of Care Judgment..	80	27.1
4. Explicit Process Criteria.....		
a) Baltimore City Hospitals Group.	4	1.4
b) Johns Hopkins Group (Specialists).....	6	2.0
5. Estimation of Group Outcome		
a) For Urinary Tract Infections, Based on Positive Urine Culture (106 Cases).....	42	39.6
b) For Hypertension, Based on Uncontrolled Blood Pressure (113 Cases).....	50	44.2

of quality assessment methods, and which demonstrate causal relationships between medical care processes and patient outcome. In order to accomplish these tasks, many of these studies should be performed in community hospitals. This will require substantial cooperation from hospital administrators.

The second major implication of this paper is that the delivery of acceptable levels of quality of care, as determined by any method, is sufficiently difficult that any initial assessment of quality of care even at institutions of worldwide reputation is likely to demonstrate major deficiencies in the quality of care provided.

Since people and physicians in particular generally do not like to be told that much of their devoted hard work is for naught, studies that show low levels of quality of care invariably lead to some problems. Pressure can develop which results in suspension of effective quality assurance activities. Permission for dissemination of the results to the medical profession is denied. Furthermore, in this age of consumerism with the right of the public to have access to this type of information almost guaranteed, the above problems are compounded. For example, when the study which was described in this paper was finished both the chief of the medical staff and hospital administrator agreed to release the information contained in it. However, the hospital instead of being rewarded for its honesty and willingness to make its quality assessment work public, no matter what the results, was placed on the defensive and received criticism for the level of care provided. This was true even though the medical care provided in this fine teaching institution is on par with or better than that provided in most of the other hospitals in Baltimore. In today's world, it seems that good programs which have been carefully evaluated and have been shown to have deficiencies are discarded rather than improved while poor programs which have never been evaluated are continued.

This problem of correct incentives and constructive motivations is not only acutely critical in quality assurance activities but is just as important in the area of control of hospital utilization. A good program supported by the hospital administrator to remove patients from the hospital who do not require its complex therapeutic environment will result in a decrease in the hospital bed occupancy rate and

possibly bankruptcy. Under these circumstances, why should any hospital administrator actively work to establish an effective utilization review system, especially if he happens to be located in one of the many American cities with excess hospital beds? At present, it certainly would require a courageous if not foolhardy medical staff or hospital administrator to actively support a program of quality assurance or assurance of appropriate hospital utilization. In order to alter the present negative incentives, it is time to reward those institutions which actively develop programs in these areas and are willing to release this information, after it has been placed in proper context, to the public. The reward should, perhaps, be money which could be used to correct the deficiencies uncovered by these studies. The development of a quality assurance system which corrects these negative incentives will not be easy and will require substantial support from hospital administrators.

Finally, there are enough gross problems in the provision of health care that any effort to assess the quality of care will be helpful. The results of such an assessment must be carefully and judiciously applied. Those changes in the provision of health care that have a high probability of affecting the health status of patients should be made before instituting changes that are less likely to affect health. After any substantial changes have been made, it is essential that their impact be assessed to determine if the changes were really appropriate.

Over 100 years ago Florence Nightingale [8] developed the foundation for a quality assurance system based on the collection of a set of standardized hospital statistics such as case-fatality rate, length of stay, etc. Florence Nightingale used this simple reporting system to describe the unsafe conditions in Army hospitals and to suggest that changes in sanitary conditions in these hospitals could produce dramatic changes in case-fatality rates. One hundred years later the hospitals in the United States still do not use a reliable and valid hospital discharge abstract which consists of standardized accepted definitions. However, recent progress in this area suggests that the development of a uniform hospital discharge abstract is feasible and that the information in it could become the basis of a quality assurance system [9]. Since process information, outcome information, diagnosis, length of stay, charges, name of the attending physician, patient's zip code, etc.,

are all included in this abstract, statistical analysis of the data derived from these abstracts would produce interesting comparisons between physicians, hospitals, regions, etc. An example of one such type of comparison could be the difference in case-fatality rates of patients hospitalized for an acute heart attack between two hospitals.

In the early 1900's Codman was lamenting:

One might say that the instruction of the students is irrespective of the results to the patients, but let us suppose, in surgery, for example, that all the operations which have been watched by these students have been misdirected efforts at the cure of disease, and the students have learned to do something which is not worthwhile and does not really improve the patient. The product of the hospital in this case, even as regards student instruction, would be nil—even worse than nil. We are, therefore, referred again to the classification of disease and the results to the patients, because a student would naturally wish to receive his instruction at a hospital where the treatment was shown to be of benefit to the patient. We may then say that the product of the hospital in medical education, like the product in the number of cases treated, depends on whether or not the cases are well treated.

The publication of medical and surgical papers by members of our profession is a very interesting phenomenon. We are like boys throwing pebbles into a pond. Some stones fall without even a splash, producing only that peculiar sucking sound which we used to call "cutting an egg." Others splash, wake up the pond for an instant, and send out more or less widening circles, which fade away entirely or leave little ripples which nobody recognizes as belonging to the original splash. Occasionally some apparently dull boy, when our backs are turned or when we are busy watching our own circles, throws in a huge rock which starts an enormous wave, and we all throw in a stone in a hurry and try to think that we made the wave ourselves. As much of truth as there is in our own efforts coincides with and reinforces the wave until even its author is appalled by its size [10].

In order to try to solve the problems raised in these quotes, Codman attempted to institute a follow-up system seeing all of his patients, on whom he had operated, one year later. From the information gathered at this examination, he attempted to assess whether or not the operation was indicated and if he had actually

improved the patient's symptoms. After being thoroughly frustrated in these efforts, he resigned his position as professor of surgery at the Massachusetts General Hospital and started his own hospital.

It is said that all ideas in health have a 60 to 100 year cyclical pattern. In that case we may be at the peak of another cycle. To prevent us from falling off this peak a rigorous conceptual framework for quality assessment and assurance based on experimental information must be developed. This can occur only if active support, no matter what the consequence, is given to this task by academic researchers, hospital administrators, practicing physicians and other members of the health team.

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PANEL DISCUSSION

Quality of Care Assessment: State of the Art

STEPHEN M. SHORTELL, *Moderator*

Panel Members:

OSLER PETERSON, M.D., *Professor, Department of Preventive Medicine, Harvard University*

CLEMENT BROWN, M.D., *Director of Medical Education, Mercy Hospital, Chicago*

JOHN WILLIAMSON, M.D., *Professor, Department of Medical Care and Hospitals, Johns Hopkins University*

ROBERT BROOK, M.D., *National Center for Health Services Research and Development*

JOSEPH B. KIRSNER, M.D., *Chief of Clinical Staff and Deputy Dean for Medical Affairs, Pritzker School of Medicine, University of Chicago*

CHAIRMAN SHORTELL: So far most of the people that we have had on the program have been from rather erstwhile Eastern institutions, Hopkins, Harvard and so forth, and in order to strike some balance in the group, we decided we ought to have someone west of the Appalachians. So we are very pleased to have joining the panel this afternoon Dr. Joseph Kirsner. Dr. Kirsner is Deputy Dean for Medical Affairs and Chief of the Clinical Staff at the University of Chicago Hospitals and Clinics. He received his M.D. at Tufts, which I guess makes him an Easterner to begin with, and he also has a Ph.D. in biological sciences from here at the University of Chicago. Dr. Kirsner, we are very happy to have you join us.

As to the format for the panel, I thought we might begin by giving each of our speakers five or ten minutes to comment on what they have heard; to fill in gaps and voice disagreements, and then open it up for questions from the audience and go from there.

So we might begin, Dr. Kirsner, with some of your reactions.

DR. JOSEPH B. KIRSNER: Thank you, Dr. Shortell. I am happy to join the group and to talk about this increasingly important subject. I originally had hoped, when I accepted Dr.

Shortell's invitation, to tell you how the University of Chicago was solving the problem of assessing the quality of clinical care.

As I began to delve into the subject, and recognizing all of the input of our faculty, I came to realize that our efforts were somewhat incomplete, and after listening to my distinguished colleagues, I was very sure of it. So perhaps I will leave that aspect of the subject by telling you that we are attempting to do a great deal in terms of the many conferences and the many clinical committees and the functioning of an active medical audit utilization group. But clearly, there are many more things to be done.

As I listened today I was impressed by the knowledge and wisdom of the speakers. I felt informed, but I must admit that I ended up confused.

I had the general comfortable feeling that throughout the years we had been making some progress in medicine, and I am sure that everyone will agree that we have, but clearly we have reached a point now where we must take this deeper and more comprehensive, more pragmatic look at what we are doing. The difficulty is that the techniques for doing this, the authority, if you will, the motivation, the direction are still yet to be defined except in

these very excellent, rather specialized, study groups.

I think the problem is not only one of organization and administration, and certainly I would agree with Dr. Peterson that we very much need this, but I believe as others have brought out, we need to motivate physicians. While education is perhaps the most diplomatic way of motivating physicians, as you all know, there are other trends on the horizon which will perhaps induce an increased awareness on the part of the profession of such things as recertification, relicensing. The American Board of Family Practice now has as one of its requirements a relicensing every six years. And other groups are beginning to incorporate this regulation. There are several states, at least three in this country, most of them in the Southwest, which now require continued certification, clear evidence of active participation in continuing educational programs.

Dr. Peterson brought up the matter of the kind of hospital and its size. He is quite right in that the size doesn't necessarily guarantee quality care. Really, it is the function of the kind of hospital. It is the orientation of its staff. We have always thought that university-based hospitals, because of the educational process, because of the inquiring atmosphere, because of the involvement of students questioning what we do, with a fresh mind, because of the constant review that goes on in multiple conferences almost every day in the week—we had thought we were doing a better job of reviewing our clinical activities than perhaps occurred in other hospitals where physicians tended to function quite unto themselves without the opportunity for review. I really still think so. I think that a university hospital, such as ours, comprised of a full-time staff, where the practice of medicine is not tied into personal economic gain, where quality is, I think, not only a watchword but an actuality, I think we do a better job than many hospitals. But, I would be the first to tell you that we can do still a better job.

There is a great deal of variation in the quality of medical care, and I find that the key factor in this is the attitude of the physician, the motivation of the physician, his personal standards of how he practices medicine, and I am reminded of some unusual incidents which bear this out.

I am reminded, for example, of the 22-year-old girl whom I was called to see last year.

She was lying in bed curled up with a nasogastric tube. The surgeon had been called, presumably for an operation.

We quickly learned that she had already had at the age of 22, ten abdominal operations—all of them at other hospitals, I am happy to say, and everyone of them totally unnecessary. Therefore, she was confronted with her eleventh.

What none of the physicians previously had learned was that she was the product of an addict father, an alcoholic mother, a psychotic brother, and every day in her life was a traumatic event of the utmost proportions. At the age of 22 she had achieved the status of a secretary-mistress, and was carrying on along in continued psychiatric difficulties.

One might argue that she had excellent care in terms of a successful abdominal operation ten times. But we would all quickly agree that she was the victim of atrocious care because nobody had sat down and talked with this girl.

We can repeat this story any number of times. I think talking to a patient, despite all of the improved, sophisticated technology, is still a vital part of the patient-physician process, and it sometimes does lead to funny events.

Dr. Brook reminded me of a story. Some years ago I saw a lady with abdominal symptoms which seemed to be that of an irritable colon. It had been our practice to carry out a certain number of studies, and then to explain the physiologic nature of the symptomatology endeavoring to be reassuring in pointing out that so often this is a stress phenomenon, and that it reflects a life situation, not necessarily requiring a psychiatrist, not reflecting on one's basic emotional pattern, but a difficult emotional situation, and that very often this could be corrected with understanding and appreciation of the problem, and that while this was being done, we would prescribe a very well known tablet of phenobarbital and an extract of belladonna.

It is our practice to have the patient come back every three weeks or four weeks until the problem is under control. This lady came back beaming, obviously in good health, and if nothing had been said, the physician might have taken the view that the good old phenobarbital and belladonna had another triumph under its belt, but the physician said to the lady: "That is wonderful. Did you take the medicine four times a day as we prescribed?"

She said, "Oh, no, doctor. After listening to your story about how this comes about, I gave the prescription to my husband, and he is taking the pills four times a day." A true story, actually. I wasn't kidding.

But I think perhaps the most important point that I would make is that we are aware of this new ferment, and we are most appreciative to all of the people here for calling these things to our attention. Even though we can't translate them immediately into new programs, they are having an impact.

This matter of looking at ourselves is having an impact, and I believe that with time, we will steadily improve our observation and follow-up of the patient.

We will be shaken as we go along because we are finding that some of our treasured approaches don't seem to have the effect on outcome that we once thought, and there are already some studies of this kind.

There is a very interesting study that has been undertaken in Charlottesville, Virginia, which destroys some of the fondest approaches of the gastroenterologists in the management of gastric ulcer. But the net of it all, I think, should be a steady improvement in the care of the patient, although I hope—and this is a part of my concern—that the rising tide of malpractice doesn't sweep us under some devastating table while we achieve the looked-for results.

DR. WILLIAMSON: I wanted to bring up one point. We know there are many organizations, many groups, that are getting in on the act of quality assurance.

One of the critical issues that we face is this problem of developing standards or, as some people will use, criteria for assessing care. In other words, once you measure some parameter, whether it is process or outcome, you have to say: What is the meaning of this for decision making? And your standard or your measure—I think the World Health Organization prefers the word "norm"—should give you some decisional implication of your measurement, and that makes up the idea of evaluation.

I would like to mention an instance of a joint committee on quality assurance that was developed by the American Academy of Pediatrics. They started to go the route of the American Society of Internal Medicine in developing a group of process criteria. They ended up coming to agreement on a very wide list of criteria or standards for seven health problems.

This has all of the difficulties that Bob mentioned in his talk as to the problem that this group may not likely relate to the outcome. So we said: "Let's try something different. Let's turn and go in the other direction, and see if we can work towards an outcome approach in criteria development."

So we had the group say: "How many of these criteria do you think you could support with literature, documentation, where you could show that there was some evidence of cause and effect between the process and the outcome?" So they went back and took these criteria, readjusted them, and they came up with a list that was roughly a little over half of what it had been.

We said: "This represents a biased group. Is it possible that we could develop a national sample of experts that could go through the same process and try and document the causal relationship between process and outcome?"

There are ten member organizations of the joint committee including the American Medical Association, the National Medical Association, etc. Each of the member organizations then nominated ten academicians and ten practitioners who they felt were of superb quality and experience in the specific health problem area we are talking about. So we ended up with a national panel of some 420 matched for academic background and practice background that were to provide the judgments.

They came up with a list. In other words, they went through all of these and digested it down and said: "Those are the standards or criteria that we feel are supportable."

Then we went the final step, and we said: "Okay. Of this group, which standards can be supported by the literature?"

They had to then give us a compendium of the actual articles, the research articles, that established the point.

Then we had a decision to make. If we are going to rely on those articles that will depend upon the control of clinical trials where we have hard data to establish causality, we will not be able to assess quality of care except in extremely narrow areas.

If we can accept a consensus of an expert group nominated from a national panel, we can have a fairly extensive group of criteria in coverage.

Then we went the one final step. We took a random sample of the nation's practitioners who are caring for children from newborns

through 19, and we gave them the same task right here where they were asked which criteria did they deal with.

The implications we have taken from this are that these criteria, representing 85 percent consensus, are probably the nucleus base that we will use for subsequent assessment.

The fact there is such a discrepancy between the average pediatrician and these criteria indicates that we have got to have quite an educational program to try and bring this back into some type of closer reliance.

The final point is that these criteria were very different from the ones that have been developed today because we asked for a consensus of those interventions that hurt patients, that were harmful. We asked for a consensus of those interventions that did not hurt, did not harm, but are unnecessary, and, finally, the final and largest group, which are the interventions that are clearly necessary and helpful. So that we are going to end up in three different types, and this is going to give us a method of getting at this question of the unnecessary intervention that costs resources, and yet according to the best expert judgment, does not produce any expert judgment, does not affect the outcome. So I just wanted to mention that point, and I will bring up my other point later in our discussion.

DR. KIRSNER: Could I raise a question, Doctor?

In talking about criteria, and we had better talk about diagnostic criteria, shouldn't we emphasize the fact that in a way these are not absolute? A diagnostic procedure in the hands of Doctor A might be extremely decisive, but in the hands of Doctors B, C, D and E might not be so decisive. I think this could apply to a wide variety of diagnostic procedures which might be discredited in one area but, on the other hand, in another setting could turn out to be a very vital part of the diagnostic process. So it seems to me that in all of these evaluations, somewhere along the line, you are going to have to take into account who does the procedure, and what is the skill of that individual.

DR. WILLIAMSON: I think what you are bringing up, Joe, if I understand you, is the problem of specificity. These criteria we are talking about have to do with such things as urinary tract infection for ages 8 to 14, first episode. So we get down to specifics. If Doctors A, B, C,

and D use an indicated intervention, the intervention might be to identify whether there is a bacterial infection and whether the bacteria is sensitive to any of the drugs we have.

If E and F did that, hopefully they would have a good diagnostic base for treatment, and if A and B did the same thing, they should have a good diagnostic base.

If we are talking about the broad category of urinary tract infections, I agree we get into this trouble, but I think that these criteria that we are talking about are very specific for the specific large groups of patients that we are dealing with.

DR. KIRSNER: I agree with you, but I don't think that is what Jack was saying, John. I will give you an example.

In one institution gastric cytology to see if you have cancer of the stomach may be a 99 percent reliable procedure and be a very valuable diagnostic tool. In another institution it may be absolutely worthless because the laboratory is no good or the cytopathologist is no good or the specimen wasn't taken correctly, and, therefore, even for homogeneous groups of patients, different diagnostic procedures are going to vary widely in their use.

The Pap smear is probably the best. You can get tremendously different readings depending on which pathologist reads it. Some pathologists are so poor that probably the Pap smear is counterproductive because it produces a random group of hysterectomies and doesn't really help anybody, while in other groups, it is very valuable. So I think that is the point.

DR. WILLIAMSON: I misunderstood your question. I agree totally with your point. I certainly agree with this.

QUESTION: Would you be good enough to tell us, did the 420 people think they were picking criteria that other pediatricians should use? And did the random sample practicing pediatricians pick criteria that they were willing to use in their own practice?

DR. WILLIAMSON: There was a second column on this. It said: Would you recommend these criteria for general peer review use?

QUESTION: Is that what the 420 picked?

DR. WILLIAMSON: This was to establish causal relationships. Here they are saying: With this type of patient, what particular intervention do you think would have a beneficial causal relationship with a good outcome? What would be harmful, and what would not make any difference?

QUESTION: So they knew it would apply to other practicing pediatricians?

DR. WILLIAMSON: Yes. But that is a second question.

First we get: Do they feel there is supportive evidence that there is causality? Then we go to the next question. Would you recommend this criteria be used for peer review purposes? That is the second question you answer. Then they gave us a new set of data that we can look at as far as their recommendations for use of this in peer review or the use of it in quality assessment.

Apparently, the average physician feels that a very large number of interventions are causally related, in contrast to many specialists who have been doing research, know the literature, and, hopefully, have been going into the evidence. These are practicing physicians who just off the top of their heads say: "Yes, I think this is important," and relate it. "I think this is relevant to good outcome," and they would give us a list of things.

We end up with the potential for overutilization because they think far more things are useful than can be documented.

QUESTION: I was wondering to what extent you are really confronted with that famous situation of the Plymouth people who did a study about what kind of a car would you like to buy, and they forgot to ask what kind of a car would your neighbor like to buy.

DR. WILLIAMSON: Perhaps your second question would be to ask what would be recommended for your neighbor.

QUESTION: I was just wondering if the people in the third group were really asked whether or not these factors were important in taking care of the patient or in preventing malpractice suits.

DR. WILLIAMSON: We just asked: Did they

feel that there is documentable or supportable causal relationship?

We asked this group: Would they agree to have this used in a peer review? But right here we are just asking for their estimate of causality of efficacy. Does penicillin work with pneumococcal pneumonia? That is all we are asking, and then getting a consensus of the items where they feel there is a relationship between process and outcome.

QUESTION: Dr. Williamson, looking then at the category that you think is the most appropriate and relevant category to use for assessing quality, are you suggesting that that be an interim category that will then be tested and studied, or are you suggesting that that be a definitive category?

That is to say, are you trying to say that this will be the thing on which randomized control trials could be based, or are you saying that we don't need randomized control trials because we have a consensus?

DR. WILLIAMSON: No, we are saying that in this area, we need randomized control clinical trials, and we feel they should definitely be done. We have got to have, as you know, several hundred Framingham studies immediately, but while we are waiting for those several hundred, we are going to use these as our best approximation of effective criteria. I think this is where Beverly Payne and his criteria are. And we are not going to be where we wipe ourselves out and just go around in a fog doing nothing.

But this is an interim compromise, and the fact is that these are the criteria that the average practitioner thinks are valid. It sounds like we have to have a discussion at the start which is then going to be the focus of a continuing education effort between the American Academy and the pediatric practitioners, and it may be there is going to be evidence that will come out that some of these criteria are good, that it will be convincing, but at least we get the dialog going.

We start to go back and forth and ask these questions and try to push down for documented efficacy as a base for developing our standards of assessment because unless we do that, I am afraid that as Bob pointed out, we are going to force ourselves into overutilization like we have never seen.

QUESTION: Did you get any evaluation of: "Take two aspirins and call me in the morning?"

DR. WILLIAMSON: No, but we did on: "Put the lime in the coconut."

DR. PETERSON: I would kind of like to react to a couple of things in this. Much review that is now performed is on a retrospective basis, and if there is any particular strength about the medical school pattern, as Dr. Kirsner mentioned, it is based upon the fact that the professional review is a constant, ongoing and often anticipatory kind of event. In other words, a young intern—who is on the service or the resident or the junior staff answers to a senior staff or to someone above him, he very quickly learns that he is going to perform according to a certain way because there is a certain logic in doing things this way, according to the person who sets the treatment policy in the unit. In other words, instead of looking for the error after it has occurred, the unit is set up actually to apply uniform standards, which, when I was certainly a house officer, it was always referred to as the routines.

We knew what we had to do for every kind of case. We often maybe didn't understand why, but we did know that we had to go through a certain kind of cookbook at the very least.

I would also like to comment on another point, and just change, if I might, the direction of the discussion a little bit.

Dr. Kirsner mentioned his faith in the medical center as a model, and I think that is quite aptly justified, for many reasons. If I may tell a story. I came out of a faculty committee meeting one time. I had met the new professor of neurology at Harvard who had just come back from England.

We introduced ourselves, and we got to talking about all kinds of things, and finally he told a story which I thought was terribly interesting about why a patient was better cared for in England than in the United States.

It went something like this. The random patient who has an automobile accident in England, on a country road, and is taken to the nearest hospital is much more likely to benefit from the care he gets there than the random patient who has an automobile accident on a

country road in the United States for the following reasons.

The patient in England, who will be taken care of, will be taken to the hospital by a well trained ambulance group, and in the United States he may be taken to the hospital by almost anybody from the undertaker to the very best of all ambulance crews.

When he gets to the hospital, the patient in England will probably be delivered to a doctor who has been very carefully selected to take care of his particular problem because he has demonstrated competence. In this case it would probably be an orthopedic surgeon, or at the very least a general surgeon.

In the United States the man who reached the American hospital would probably be taken care of by a man whose experience might be large or small.

The man who is cared for in the British hospital would have his doctor's own work constantly scrutinized by other members of the firm. That is, the group of doctors who were responsible for, let us say, the orthopedic care or the surgical care in that hospital.

These emphasize the characteristics also of the medical schools in the United States where we have a very highly organized service into which the PSRO is built in as a sort of predictive mechanism rather than a quality maintenance or review mechanism.

It is quite different, and I think that some one this morning mentioned the fact that one of our measures of quality of medical care was our resource input.

I have a feeling that the resource inputs are a measure of quality of medical care under certain circumstances, imperfect though they may be. That is where you have a very complete control over the resource inputs, as let us say, in the teaching hospital, or in the case of England where a man in order to get a position as consultant in, let us say, the Winchester Hospital, has to have gone through a rigorous training program, and has had to demonstrate competency when he is beyond his training stage, and finally, he has to have gotten enough merit badges of one sort or another in the form of papers or other kinds of productive activity so that he is appointed as a consultant. In other words, this rather complete control allows the medical care system in England almost to dictate

the level of care that he wants, which is, I think, rather similar to what happens to the medical care industry as represented by the teaching hospital in the United States.

While we accept the teaching hospital and this kind of predictive model, as I have somewhat loosely called it as a good model to copy for medical care, I think we also must recognize that it has its weaknesses.

I think, about 1956, Henry Beecher and a Dr. Todd published a study called "Deaths Associated with Anesthesia," which was performed in a number of medical centers throughout the United States.

On the very first page of this very extensive report Dr. Beecher raised the question: Could the fact that we were doing this study have changed the results in this hospital? The fact that we were studying the deaths, would this have caused these university hospitals to exercise greater caution, and, therefore, have really spoiled the study?

He said this was definitely not the case. He said, "We thought just for the purpose of maintaining the morale, we had to have a reporting system." So they reported to the hospital every six months the death rates of their own institution and also of all other institutions. Then they reported again on an annual basis, which went on for five years. He said there was absolutely no evidence that reporting of these death rates had any effect upon the death rates in the individual institution.

The point of the story is that the death rate in the different institutions varied by a factor of at least four, and these, remember, were surgery death rates. Even though the hospitals knew that their death rate was, let us say, four times as high as the best hospital in the group that was receiving these reports, it did not affect it.

Obviously, if we are going to deal with problems, we have to have this kind of information. We have to have an information monitoring system so that we know where we are.

If we have the lowest death rate of anyone, quite obviously we are in a good position and we can probably be satisfied with it, but if we do not have the lowest death rate, we then have to begin to search for causes and this is where I think the conjunction between the information system and the administration becomes a problem.

Now what do you do? How do you go from, let us say, the fact that our hospital is four times

as dangerous a place to have surgery performed as another hospital? How are we going to translate that in our institution into greater safety?

I might just add actually that the Beecher study of the 1950's was followed up by the halothane study which was ostensibly a study of anesthesia, but it really turned out to be a study of institutional differences, and it was found that there were somewhat more than threefold differences in the death rates of university medical centers that could not be explained by patients' physical conditions, by the operation done, or patient age, which were the only patient characteristics available on which the death rates could be standardized. So quite clearly, though, the university, I think, has the kind of organization and probably is properly a model.

The model itself needs the kind of techniques that we have been talking about today just as badly as does the community hospital.

DR. KIRSNER: I would like to support Dr. Peterson in this regard.

I hope you don't think that I regard the university hospital as the ultimate today. There are many problems that need to be solved.

DR. PETERSON: I was trying to pat you on the back there.

DR. KIRSNER: Thank you very much, but I wanted to be sure that you are all aware of the fact that we do realize some of the limitations and the needs to improve.

Dr. Peterson brought up another interesting point that perhaps I could mention, and that is the influence of studies on outcome and on evaluation of the quality of care. I think, Dr. Peterson, you know this better than I do, but the Boston inter-hospital study dealing with portal hypertension and varicose veins, did they not conclude that the very process of including patients in the study, the very process of undertaking the evaluation led to an improvement in the outcome? They finally decided that surgical intervention was not all that great as it had been thought.

Do you recall any of the details of that study?

DR. PETERSON: I don't remember that specific point. Actually, I thought the study came out very clearly that surgery and conservative treatment produced almost exactly the same result.

DR. KIRSNER: The same result, yes.

DR. PETERSON: I don't think there was any halo effect or Hawthorne effect of that sort.

DR. BROOK: I would like to disagree with both of these gentlemen. I don't think there is any evidence whatsoever to really generate the conclusion that university hospitals are better than good nonuniversity hospitals of the same size, for instance.

I think we look at things very peculiarly. In university hospitals we devote all our resources, or a large chunk of our resources, to try to cure incurables in a very scientific way.

I can't recall the number of hours I spent treating septic shock with millions of dollars, fully realizing it didn't do any good, while there were patients in the outpatient department that weren't being seen at all with major problems that I could have done some good on, but the incentive system was derived for me to treat the septic shock patients in the in-hospital service.

There is no doubt in my mind that that probably exists, that in-hospital service may be a little better in university hospitals, but if you consider it in the total context of patient care, the university hospital may be destructive. They may promote disunion in care, so that follow-up is really impaired.

A hypertensive patient may not get as many tests in a community hospital as he gets in a university hospital, but we do not know whether the probability of his blood pressure being controlled would be better in that community hospital where his doctor may follow him up versus the university hospital where an intern or resident quits at the end of his hospital care. So I don't know those results.

I can tell you one study from England which looked at the death rates from prostatectomy which was a very common procedure in elderly men. The first look at data suggested that university hospitals had a lower death rate, and then they looked at it closer, and they found out that the university hospitals were not getting the sicker cases, but were actually getting the cases that were healthiest, the people that really had very little impairment. They measured this by whether they were elective or not.

When they controlled for this, the differences in death rate disappeared, so all I am saying is that I have some faith in university hospitals,

but I think we have made too strong a statement. We may be unfair to the better community hospitals.

QUESTION: Earlier we were talking about setting up criteria for a series of 8 or 10 diagnostic tests. We have been talking about setting up criteria all afternoon and this morning also as to evaluating patient care.

It seems to me that what we are doing is forcing the practitioner to take more tests than he might want to do. In other words, he might do one of these diagnostic tests and have some fairly conclusive evidence of the diagnosis; we are setting up a series of 10. Secondly, we haven't taken into consideration the possibility that that person might have two or three diagnoses.

I am wondering whether this approach of setting up criteria is going to be contributing to better utilization and better patient care, or whether it is tying the hands of the clinician and possibly leading to worse utilization?

DR. WILLIAMSON: I think your question brings up a point, here, that I was talking about. First, when we develop standards, we have to be very specific as to what patient they apply to.

If it is a patient with two or three diagnoses, then that is a different standard from a patient with just one diagnosis of one of the same conditions. So we have to be very specific as to whom the criteria apply.

Secondly, you are very correct, that the way we are developing processed criteria at the present time does tend to give us what I call a laundry list of agreed to items by the group of peers that get together and say: These are the things we should be doing, and that is the first bar there. The top of the bar you can see is a very large number of items, and if most physicians are only doing the number that we see on the third bar, then to make them go to an optimum, they are going to have to do all those other items, those interventions that they, up until now, have not been doing which is going to increase utilization.

The only way out, that I can see, is try to get an expert group and say: Is there evidence or documentation that if we do the intervention, it will do some good? It will affect, it will benefit, the patient, and then when we go to that kind

of evidence, we drop down to a very small number of things, and we can say, as a minimum, we have got to at least do those.

QUESTION: Let me pursue that just a second.

In our teaching setting, Dr. Kirsner has been talking about, it seems to me that sometimes we are teaching our health professionals to take more diagnostic tests than they normally would, and one of the reasons we do that is because we are teaching them to pick up paralleling conditions. An example would be someone who has rheumatoid arthritis that comes in to see the rheumatologist, and the rheumatologist and his resident picks up the fact that he has a heart condition or something else, because they give a battery of tests.

It seems to me that we are teaching our health professionals to do more than they have to do, and that that is why I brought up the paralleling conditions and the multiple diagnoses. That is the way we are teaching our students to go at it.

DR. WILLIAMSON: I couldn't agree more, and I don't want to get started on the quality of medical education today, but when students have as their own standard to try and please the professor of medicine, and he is more interested in thoroughness than discrimination, we have a very serious conflict of interest.

CHAIRMAN SHORTELL: I think also in response to the question this is deeply engrained in medical education. It has been for years in terms of trying not to err; to avoid false negatives.

QUESTION: I have been impressed with this morning's deliberations, and this afternoon our question here seems to be focusing on quality of care through the examining process.

I think one thing has been confusing to me, at least, and this is my question: As hospital administrators or people involved in hospitals, we are faced with several sets of pressures or interest groups, the physicians, the government and the patients, and I wonder if we haven't honed in on how the patient judges the quality of care and how we convince him, in fact, that the profession is carrying this out in his interest, so he, in fact, can understand it; so he knows that if he goes into a hospital they are performing care which is of a high quality he can understand.

I wonder. Some of this has been very specific and understood by professionals and directed and controlled by these professionals, but I just wonder where the patient himself with an understanding fits into this system.

DR. KIRSNER: I think this is a very important issue, and I think it is true, as has been said before, that there is a tendency to be rather comprehensive in the university teaching center, and certainly at times overly so.

I think, however, in dealing with a patient, it becomes a matter of adequate communication. For example, we see many patients who have been elsewhere, who have been in other hospitals, nonteaching hospitals as well as teaching hospitals, and it really becomes a matter of the depth of communication and clarity of communication between patient and physician.

Patients will accept, in my experience, entrance into a teaching hospital, will accept the fact that the history and the physical examination may be accomplished twice. He sometimes will balk a little bit, but will accept the fact that testing is done on a comprehensive basis, and the likelihood of a thorough evaluation is somewhat better assured.

On the other hand, when patients are not communicated with, they do resent this, and sometimes if one is not careful, one can overdo this. Such as a patient I had last week who two weeks earlier had had a comprehensive series of studies leading to a decision for hospitalization, and then on the day of projected admission to the hospital was about to be put through the same series of tests at a preadmission workup. But I think we have to be alert to these problems and try to anticipate them and prevent repetitive testing.

This, a patient will not understand, no matter how one communicates, but I do believe the key here is communication.

DR. PETERSON: Perhaps I would like to ask the intent of the questioner.

Was the idea that perhaps patients should be very knowledgeable in general about health affairs?

COMMENT: No, I think the patient judges the quality of care from standards which are different from the ones we are talking about here.

DR. PETERSON: I think that is true.

QUESTION: How can we relate or add to his confidence that we are, in effect, trying to answer his standards, or meet those standards, and also meet the set of standards we are developing here?

DR. PETERSON: You mean the trust that he puts in the institution, or in the doctor, or whatever?

QUESTION: Both.

CHAIRMAN SHORTELL: I think the issues of convenience, comfort, consideration, and interpersonal factors are the type of things that I think we are talking about.

DR. BROOK: I think I can define that a little bit better.

Let's say a patient has an ulcer on his leg that is not healing. The goal of the doctor may be to get the ulcer nicely healed. Maybe the patient has to stay in bed with his foot hanging from the ceiling, and that is judged as good quality care.

From the patient's point of view maybe he is willing to put up with a small ulcer and get back to work to support his family.

My answer to the rest of your question is that we have to move toward consumers getting involved and setting outcome goals for their care. They have to be educated enough, and they can do it. I think there will be some people trying to do that in the next few years.

DR. WILLIAMSON: Let me just add to this. This is a hot topic.

I think one of the most interesting experiments going on in this line is the work that is going on at the University of Vermont.

You may have heard about this. Larry Weed is up there, and they have the problem-oriented systems.

They actually gave the patients their own charts and told them to take the charts home. They had a check list where they were to go through and check off what the physician had done, and to see if it was related, when he had a specific problem, with all of these interventions that the physician had done. The physician had to put down the reason for his intervention. Did they all lead to the diagnosis? Were there tests that were ordered where there were not results, or tests which the physician ignored?

The patient, after studying these records and checking off this little check sheet, gave the doctor his quality score. He came back and told the doctor where he had goofed and where the things were missing and where other things had to be done.

The experience out of this was, I think, from the point of view of the patient, that something like 96 or 97 percent were thoroughly impressed and felt this was most constructive and most helpful, and very few complained that this gave them all kinds of worrisome information they didn't want to know. But it looks like it is going to work.

This would be quite a shock, though, for the physicians to get adjusted to let the patients see their charts.

DR. BROOK: Can I go back one second to the comprehensive question, again reiterating what Larry Weed has said.

He was saying: You are way ahead of the game. You are defining what you are doing. If you didn't define the data base, you were neglecting to be comprehensive, and then I would have a lot of argument with you.

If you define your data base, you have got to go back and re-examine the relevance for completeness and to determine whether it makes any sense. I will give you an example.

When you go to a doctor, four things can happen, two of which are bad. You can be healthy and be called healthy. You can be sick and be called sick, and you like that to happen every time. But you can also be healthy and called sick, and you also can be sick and called healthy. If you become very comprehensive, especially looking for rare diseases, you increase the probability that healthy people are going to be labeled sick, and all the problems that happen with that.

A very nice study was done which was reported in the *New England Journal*, about picking up congenital cardiac disease in young children from the city of Seattle. They reviewed all the records of people on the junior high school level. They found that of the 91 patients, or something like that—I am remembering these figures off the top of my head—that were labeled as having congenital heart disease and were psychologically impaired because of that label, they were restricted from physical activity, about three-fourths of them were false-

positive. In other words they had no heart disease at all, but it was a legitimate mistake. It was trying to make a difficult diagnosis in a very rare problem.

You can conclude from this study that maybe in Seattle, if you got rid of all the heart surgeons and didn't even listen to the hearts of kids, you would have done better.

I am not trying to be facetious, but in becoming complete, there are innumerable tests that we don't know how to interpret in a healthy population, and we had just better watch how many healthy people we label sick.

QUESTION: It seems to me that at least one trend in the conversation this morning was that PSRO's aren't concerned with quality at all. They are concerned with cost containment primarily, and then we emphasized in the discussion methods of assuring quality, and we talked about the probability of increasing utilization and extent.

It seems to me these two portions are clashing head on, and I wondered if anyone on the panel would like to speculate as to what the interaction or the equilibrium or the net effect of the combined forces is going to be, and whether there will be some reasonable compromise, or whether it will tend to be some absurd extreme of one or the other.

DR. KIRSNER: I have always had the notion, and you can correct me if I am wrong, that when government is involved—and I hope I am not offending anyone—the basic issue is cost.

A good example of that is the reliance on number of days in the hospital as a basis for evaluating appropriateness of care. In my experience this is ridiculous.

There is one guideline, for example, that the appropriate length of stay in the hospital for a disease about which I know something, ulcerative colitis, is five days. Anything above five days needs to be certified.

Anybody who has ever seen a patient with ulcerative colitis requiring hospitalization should know that the likelihood is far more that of 15 days or 25 days, let alone five days.

I become worried. I should say I am in complete sympathy with our need to improve our approach.

I really find myself in agreement with all the main points made by my co-panelists, but I am worried about preoccupation with cost control to the extent that days in the hospital becomes the ultimate sign of quality care.

DR. BROWN: I just wanted to respond to the question about PSRO's.

I happen to be on a committee of the Association of American Medical Colleges, and we met about two weeks ago in Washington and visited both HEW and the staffs of people on the Hill that related to the PSRO legislation, Secretary-designate Bower's office, the Director of PSRO, or at least the Director-designate for PSRO, and the staffs of Senator Bennett and Representative Roy. They seemed to be very much interested in quality as well as cost containment. Even more so in quality than cost containment.

It seems as though there is the expectation that as we begin looking at what we are doing and see if we can do it in a better kind of way from the standpoint of quality or cost containment, we probably will be saving some money, but as we go further, it may well be that we are going to find it is going to cost us an increased amount of money.

When we define quality, and we find we are not giving it and have to do something to improve it, or reach it, it may well be more costly than what our operation is now. At least the people there were saying that they understand this may be so, and they are willing to support it.

What they are not willing to support is paying for things which make no sense to anybody.

I can't agree that it doesn't make any difference how long someone is in the hospital, or that that is not terribly important.

If you look, as I said before, at the most commonly done major operation in this country, cholecystectomy, five days longer on the East Coast than on the West Coast, that doesn't make any sense to me, and it doesn't make any sense to the legislators either. I think they are right. I think there are a lot of other things like that. It doesn't make any sense that the third most commonly injectable drug in the United States is an expectorant. We have been talking much of today about looking for some exquisite little things.

The kind of 220 hospitals that I have been involved with in the last three years show there

are some gross problems out there. We need to get about correcting some of them, I think.

That is what the legislators are talking about, not some of the very fine points that we like to look at because that is our thing in academic health centers.

By the way, in the course of our visit, one of our concerns was supposed to have been: Will there be some amounts of money through the PSRO legislation for academic health centers to be model PSRO's?

I think we were laughed at a bit because I think there was an understanding that there wasn't much of this kind of activity going on in most medical centers, and many of the community hospitals in this country are well ahead. I think that is right. That is what I found. Even though we frequently do the workshops in the academic medical centers, there are seldom any data there or any groups there from those hospitals that are working in any kind of way in looking at what they are providing.

We have occasionally used their charts when the hospitals forget to bring their charts, and we don't see any difference in the care, in the charts we review, against the standards that the community hospital physicians set, and the care that is given in the university hospitals:

QUESTION: What we have heard today is very esoteric and useful, but as one of what I am sure is a sizable number of administrators in the room, I can't help but be reminded of a story of the farmer who was solicited to buy a magazine on the grounds that it would help his performance. He said no, he didn't farm half as well as he knew how already.

That, in turn, reminds me that once in a university hospital we signed up in a program called PAS, that some of you may have heard of, and began to get some reports that had some not very complimentary numbers.

The only consensus we could get was that they must be filling out the forms wrong in Medical Records.

In addition to some of the more sophisticated measurements, what I am wondering is whether people on the panel have some constructive suggestions to give us as to how we might improve our ability to do the things that we already know how to do, such as trying to see if people have bugs before we give them penicillin and things of that sort, or do urine studies

on patients that are supposed to have diabetes. Little simple things like that.

DR. BROOK: That was the problem when I prepared my talk. You hit it on the nail head.

Clem and I have been on a number of programs together. If I had answered Jim's question and your question simultaneously, I would say we need 1,000 Clem Browns in this country, somebody that can rationally go around, pick some important problems and look very practically at the issues. I would have no worry. I think we would come to a nice cost-quality trade-off, and I think we would implement a lot of things.

With that introduction, I would say that that is the answer at the moment, and I think it is going to be a very gradual application of looking at obvious things and not getting involved with the methodology that we have been yelling about.

What I would suggest, however, is that as that process is going on, we do use your facilities and your hospitals to try to come up with a system that could probably take less physician time and input and would really get at the question of what things we would like to help with so that we would have a better system. But as Clem documented, there are so many gross problems everywhere right now both in terms of cost and in terms of quality that it doesn't take any one of these complex discussions we presented to you today to help answer.

I am not going to tell you how to run your hospital and how to get over this problem of relating to the physicians, the change of positions and assigning responsibility for working with the federal government.

The one thing that does disturb me is the notion that the federal government is evil. It is an American notion.

If you go to Canada, England and Wales, you don't find that notion so much. That is sad because if this thing is going to succeed, government and hospitals and providers are all going to have to be viewed as partners, and let Clem tell you how to do it. Hire him for a week.

DR. BROWN: No, I think as Bob said, there are lots of fairly serious problems—that is, at least in my experience—and I certainly don't

consider myself a researcher like the other people on this panel—but some of them are obvious enough that only a fairly oblique look can identify what they are.

The real problem, at least as we have experienced it, is getting a process started in a hospital whereby you can, at least occasionally, take a critical look at some of the more important things you do very frequently, to see if you can do them in a better kind of way.

That is about all I have thought about. You know, if you all agree that it really doesn't make much sense to have people in the hospital three or four days before they are operated on for elective cholecystectomy, maybe we ought to try to figure out a way to reduce that by a couple of days because it costs \$100 a day in a community hospital and \$200 a day in a university center—but in the university center you are paying for the extra quality that you get there. I am still concerned how somebody is going to measure it and exhibit it, in any event, but I think the big part of the problem is simply the introduction, as Dr. Peterson described it, of an information system, so you can take quick looks at what it is you are doing, and turn it around and feed it back into the operation and change it if it needs to be changed.

COMMENT: But somebody has to care, and that is the hurdle most of us haven't been able to get over.

DR. BROWN: Before we started the workshops, we just tried to replicate the Chestnut Hill process in the 10 community hospitals in the region around Philadelphia.

One of the things we found out very quickly is that it just doesn't work unless the board of trustees is behind this thing because it might cost some money. It might cost buying a physician's time or a health record analyst, or the term that John used, and you might need a data information system and so forth.

I think the trustees who are now, as we all know, legally as well as morally responsible for the delivery of care in hospitals have got to sort of get involved as partners with the medical staff and say: "Hey, it might really cost something to do this."

By the way, when I was at Chestnut Hill for all we did, even if we had paid our physicians \$25 an hour to audit charts, which we did not, the total cost of the operation was less than one percent of the total hospital budget. I think that

is a fairly reasonable quality control kind of program.

CHAIRMAN SHORTELL: How many of the hospitals, that you deal with, in terms of your workshops, have full-time or even part-time directors of medical education?

DR. BROWN: Many of them have. I don't know how many.

I would say at least half of the 220 have full-time directors of medical education, and probably more than that, but one of the problems is that directors of medical education don't see this kind of operation as having anything to do with what they do.

I know when we started in Philadelphia, we identified 12 directors of medical education. Most of them were full-time. We worked with them a year to try to get some of this process implemented.

At the end of the year, half of them said, "Yes, we think this ought to be done in our hospital, but that is not what we get paid for doing. We get paid for getting interns and residents and dealing in the area of graduate education."

But you see, we have done this now for about ten years or maybe 20 years in American hospitals. We have got a medical staff structure, and if you think of the functions of the medical staff, you look at the functions of, say, the elected president of the staff, and there is a presiding function and there is a patient care delivery overseeing function, I suppose you might call it. In addition, an education function and, in some hospitals, a research function and an administrative function.

Some years ago we separated off the education function from the president of the staff. We housed that in somebody we called the director of medical education, and we have also separated off in many of the larger hospitals the same education function from the chairman of the department, most of whom are still unpaid in this country. But we put the education function in the hands of a paid program director in a department.

Now I think we are wondering the same thing about this business of quality assurance. Do we need to separate off the function and salary, if that is what it takes to do it, or let the staff do it, if they can on their own time?

I think that is fine. If we can get away without

paying for it, fine, but it costs something whether we pay for it or not.

QUESTION: I would like to address this kind of rhetorical question for me to anyone who wants to respond to it. That is, whether you all see the series of dotted lines that exist in our health care delivery system, dotted as opposed to solid, on an organization chart, as may be the most significant barrier to broad scale communication? Any effective quality assurance system, on a broad scale, I mean, nationally in 80 percent of the delivery systems, let's say, beyond hospitals, which is another morass.

It just seems to me that in our system scarcely anyone has authority over anyone else. How in the world can you in a system that seems to rely on behavioral modifications, techniques, persuasion, education and this sort of thing, realistically expect national implementation of quality assurance?

DR. KIRSNER: Could I comment on that first?

I began by pointing out that educational efforts in this direction would be useful and necessary. They probably wouldn't be enough, and I still feel that there is no question that physicians everywhere, I mean in a university center or in a community hospital—a word I really don't care for particularly—have not been brought up to this matter of reviewing what they have been taught and what they have experienced as quality medicine in an environment that was emphasized as bringing great advances in medical care, and I think other forces need to be developed.

I would hope that the medical profession would do it as a matter of standard, as a matter of personal quality of effort, but I suspect that we will need, and there will be these pressures of recertification, relicensure, re-examination, and this might go for hospitals as well as for physicians.

DR. PETERSON: I think this question of the actual authority to effect some type of improvement of the sort you are suggesting really lies at the crux of a very interesting kind of political problem, and possibly we might introduce some political history to suggest this.

Dr. Odin Anderson who is the director of this institute at the University of Chicago, for instance, has written a good bit about it, and I might be actually making use of some of the

experiences he has actually written about, but I think if you look at the present situation with respect to what our government is doing and with what it is preoccupied, you will see that there is really a very great disparity between these two.

Let me tell you a story that I think illustrates it. I think it was in 1970 when Pat Moynahan, who is now our Ambassador to India, was then the Presidential Counselor. We asked him to come up and give a seminar to some of our students. After the seminar we sat down and had a rather good bull session. We talked about what the major preoccupations of the government were with respect to health. What was government going to do about funding health programs and the sort.

Moynahan said that you can forget government support. He said, "The whole problem seems to be just like the poverty programs." He said, "Everytime we try to spend some money down in Roxbury," which is Boston's poor area, "we end up paying a bunch of bright Radcliffe girls, and none of the money gets to the poor people."

He said, "We would like to get some medical care into the ghetto down there, too," but he said, "everything we do seems to fail to do that."

Now interestingly enough, what the government is doing now officially as a program to remedy the problems of the American medical care industry, is Nixon's health insurance program.

The insurance program is, for one thing I am sure, not going to solve that problem of the great shortage of primary care which the public feels, I think, so acutely about, and it is not going to solve many of the other problems.

Here is where I think we have to turn to history. Every country, I think, probably has to go through the same sort of learning experience about this kind of large and complicated social institution which, in this particular instance, happens to be medical care.

Certainly legislators, when you get to the level of Senators or Representatives, are very much aware of the fact that legislative proposals or legislated programs are risky. They know a lot of them fail. So they very much prefer to take very short steps rather than very long steps. I am sure that insurance will appeal to them much more than would, say, any pro-

grams that would be effectively directed at the quality of care assurance, or let us say, that were directed at trying to provide enough family doctors so that people wouldn't have to stand in queues to get a physical examination or get the druggist to treat their common cold and this sort of thing.

Anyway, every government goes into insurance, because it is the minimal step, and as they confront problem after problem, they have to deal with the problems.

Some countries deal with it, in a sense, by revolution, as England did. They nationalized their whole service in 1948. Most countries do it in small steps thereafter, but they get to about the same place, one after another. After about 30 years of this process, one gets to the same place. Let us say, medical care in Sweden is very differently organized than it is in England, but in essence, I think there are more similarities than there are differences, and I think this is the way the United States will go.

Once we have passed national health insurance, the government is going to be directly up against the problems such as the very great shortage of primary care, the great excess of many kinds of specialists, the problem of quality, the distribution, and above all, I think what government wants out of the medical care industry is effectiveness, and I think this will be the thing they will really be trying to get out of it.

QUESTION: We have mentioned it earlier here, but we seem to have left the results-oriented measurement of quality behind us, and everybody is talking about other ways of measuring quality care.

Do you think there is any possibility that we are going to end up talking about effectiveness in terms of financial considerations, quality in terms of mortality and morbidity, or some other question, and dealing with them entirely separately?

DR. WILLIAMSON: I personally don't see how you can separate effectiveness and efficiency from quality.

Effectiveness is how much of the achievable value that you achieve. Efficiency is how much of the total resources that you put into the system to achieve that value. What portion of that actually got the value that you got out of it? In other words, if you were trying to reduce a mortality rate, and it was possible to get your

mortality rate down to 15 percent in a coronary care unit, you put in a lot of effort going from 30 percent down to 15 percent. Let's say, that for every hundred dollars you put in to improve care, only \$30 really made a difference in reducing the rate, then that was an inefficient program, even though it was effective in reducing the mortality rate.

Now if it is to be a quality program, you have got to get value for a minimal resource expenditure. I just don't see how you can separate the two. I think they have both got to be part of any quality assurance program.

QUESTION: The reason I brought it up was that Dr. Kirsner's point, I think, was well taken, and we talked about how many days a patient with a given diagnosis is going to be in an institution, five as opposed to 15 or 20, and we start talking about the effectiveness of the system.

What I am saying is that perhaps quality should be measured in terms of cure rather than in terms of how many lab tests and how many days, and how many flat plates and one thing and another that we do.

It would seem to me our thrust today, although we have talked about quality, has really been in terms of effectiveness, efficiency from the financial aspect, and not from the patient's aspect in terms of do we help his disability? Is he "cured" or brought back into a productive state?

We haven't really dealt so much with that as we have with has the doctor taken the tests that I think he should, and this sort of thing?

CHAIRMAN SHORTELL: A number of the studies that I think both Dr. Brook and Dr. Williamson talked about really were outcome-oriented in terms of following the patient out of the hospital and returning to the normal work role.

I don't think it has been completely centered on the process approach, but does anyone want to comment further on that?

DR. PETERSON: I don't know. I suppose there is a simple comment that an awful lot of what is done in the hospital is probably not related to a measurable end result, and the best you can do under those circumstances is process measurement.

DR. WILLIAMSON: That is efficiency.

DR. BROOK: I will make a quick comment. I believe we have tackled very difficult diseases. It certainly does not appear very difficult to look at surgical outcomes from tissue. Osler Peterson is doing that—has done it, or is in the process of doing it.

DR. PETERSON: I have done it. Be careful, or I will show you my slides.

DR. BROOK: I will press you a little bit further. I certainly would emphasize this.

I think there is a strong problem of disassociating financial and effectiveness or quality measures. We have not simultaneously looked at the effect that utilization control mechanisms, even physician-oriented utilization control measurements, may have on the health of patients.

There was one study reported in the APHA where those patients that were denied hospitalization were thrown out of hospitals early. There were some serious psychological and physiological effects.

You could postulate that the hospital is a social institution and not just one place where you give effective medical care, and one part of the role of the hospital may be to take a little old man or woman out of the family that is taking care of her and give the family a vacation for two weeks. Before the doctors could justify this by merely looking at it, and it may very well be that they are the only institutions that are available right now that can do this. So we just have to take a look.

I think I am just as concerned with what you are saying. All I am saying is that I hope we are responsible enough to look at both sides of the issues together. I am not at all sure that is going to occur.

QUESTION: I would like to address a question to the panel broadly on a topic that Dr. Peterson brought up a few minutes ago. That is, do you think what we have heard today in terms of Dr. Brown's studies on the shocking lack of quality in some hospitalizations, studies that showed that we really don't know how to assess quality in terms of some of the data that Dr. Williamson showed us, in view of the fact that our techniques even developing those criteria are not yet developed, would there be an argument then for minimalization of national involvement in a health program until, indeed, such techniques became available? Might one,

indeed, be able to argue for a minimal insurance program until we have solved some of these very broad questions of medical care?

DR. WILLIAMSON: I will take it, where angels fear to tread.

I do not think we are going to find a panacea method or magic method that is going to be ideal for everybody that we can universally apply all over the country. I don't think Clem would, for a minute, say that he could take his method everywhere and everybody could grab on to it, and that would solve all the problems.

We do have to get people involved with the idea of trying to look at their own performance and try to identify by some means whether they can improve that performance. We do have to get people involved in these problems, if they do find deficiencies, that they will do something about them. That is a serious problem in many areas, including so many of our own hospitals and clinics. Nothing happens once you find that people are dying at a rate 100 percent higher than they should. It is shocking. So this is the basic involvement by whatever system.

I think we are going to end up with a series of competing systems, and each hospital will have to choose. Do they want to take the route of the bi-cycle? Do they want to take our health accounting approach? Do they want to take TAP or CLAP approach, or whichever way they want to go? We are in a society and a social milieu where we are just going to have to live with this entrepreneurial system. Whoever has a good system is going to bring it up as another alternative, and each hospital will have to choose. But you will have to be educated as to what to look for when you do start shopping, and I think it is meetings like this that perhaps hopefully will help you gain some idea and some criteria of your own to judge what is a good, bad, or better approach to setting up a quality assurance system within your own hospital.

DR. BROOK: Is that the answer to your question?

The question I thought you were raising was that since we don't have adequate measurements of quality, should we then delay changing the health care system by either implementing national health insurance or HMO's, or whatever there is, until we do?

I will take another question that is even more

difficult. We have already places where we have knowledge. For instance, the use of Darvon has been shown to be just as good or maybe even a little worse than that of aspirin. Yet it is 100 fold, or whatever it is, in terms of cost.

What do we do? Do we let the doctor prescribe Darvon because he thinks it is better, instead of aspirin, because it is a different color? I am just not trying to single out Darvon. There are a lot of drugs like this.

Do we write a law that states that Darvon can no longer be reproduced in the United States? I think that is the fundamental question.

At the moment, I would argue that probably the measurement of quality ought not to delay implementation of whatever programs are thought-necessary by whoever is fighting for them.

I think we can do enough in the areas of quality to get at answers to these questions, but what I would argue for is that we could easily do very well with prospective evaluations of whatever we are trying to change.

Now by easy, I mean conceptually it is easy. What is difficult is getting the tremendous cooperation of all types of health providers to accomplish the study.

For instance, one could take anyone of the quality assurance programs that we are dealing with today and take a look at the question of whether for-profit HMO's differ in quality of care versus not-for-profit HMO's, and use two or three methods simultaneously and try to get an answer.

I would suppose you would get a reasonable answer. You could do that with almost any system change. I would think that when we instituted a system change, we ought to do this. I believe in prospective evaluation, and we ought to do that.

DR. WILLIAMSON: Who should do it, though?

DR. BROOK: What do you mean, who?

DR. WILLIAMSON: Who should do the prospective evaluation? Should each hospital set up studies?

DR. BROOK: No, no, no.

DR. WILLIAMSON: The government, the field?

DR. BROOK: No, I think we are going to need cooperation. Let's say in a program that is going to set up and use a model where the best quality of care is to be given by HMO, I would argue that one could set up a prospective evaluation that could conserve resources. There ought to be some sort of a national advisory council to help to decide where the site ought to be picked, where it ought to be done, and how it ought to be implemented, and that this be done not to destroy resources, but done in one place or two places or wherever it is considered to be necessary.

DR. WILLIAMSON: But his question is: What do we do in the meantime while we are waiting for the results? Do we just hold off any quality activity?

DR. BROOK: That is not his question. His question is, do we hold off modification of the system, depending on the fact that we know nothing about measuring quality. Not hold off developing quality assurances, but hold off suggesting national health insurance.

DR. KIRSNER: Yes, I think that is the point. I think Dr. Seeger may also be thinking that national health insurance, even if it were implemented, would not necessarily change the practices that we seek to improve. It will make health care accessible perhaps to more people, but it still will not get at the fundamental problem of how physicians take care of the patients. So I am all in favor of these prospective studies, and I should tell you that two weeks from today there will be a conference in Bethesda by one particular group which will include the Second National Conference of Digestive Diseases, which will include as a very important part of its program the matter of developing evaluations of therapeutic procedures, diagnostic procedures, and bring to this whole specialty area this whole concept of the need for control studies of what you do diagnostically and therapeutically, and I think if that were to go from one specialty to another specialty to another specialty, then you would see this wave build up in a way that I think would involve the physicians and make the task of the hospital administrators a more constructive one rather than very often what seems to be a punitive one or a conflicting one in terms of dollars. That

is one of the main points I have been trying to make.

DR. BROOK: I would argue that time is very important. I would argue, and I am not a very strong case for it, because I don't think it will ever be done, but like when coronary care innovation was suggested, the time was not now to go back and reassess the coronary care question because all of the ethical issues that were raised are raised now very legitimately. The time was when you developed it, and there were only scarce resources, and you could only put it in five hospitals in the country because that is all the government was going to support, or whoever was funding it, was going to support. Then you could have picked five hospitals at random to implement it, and you could have picked five controls, and you could have done it ethically and morally.

The same thing with the saphenous vein bypass. As you go through each one of these types of procedures, the problem is to think ahead. If you implement PSRO's, and there is no overall evaluation of it, we will be arguing politically on it five years down the road.

If you institute national health insurance, the same thing will happen. There are a number of proposals that may be able to test some of these things. I don't know if it is going to be done. It is a very complex undertaking, very expensive and very costly. It involves coordination of everybody over many years, and I don't know if we can do that in our society.

CHAIRMAN SHORTELL: It seems, Bob, we might have one example just in terms of the EMCRO program. At least these were some of their announced goals.

DR. BROOK: But the EMCRO program was set up as a research and development project and did not have integrally incorporated in it a prospective evaluation design, and it makes it very difficult to go back and retrospectively look at what effect the EMCRO's had on cost utilization. They may have been the greatest successes, and maybe that is the case, but it makes it very difficult with no forethought to evaluate it.

It is the same thing with the Headstart program. They tried to evaluate the effect that Headstart had on education. They did it retrospectively using some regression techniques,

and they came out with a lot of regression artifacts which tended to show that the Headstart program had a negative impact on the educational level of the child rather than a positive impact. Only because that line was negative and showed nothing, it really did invoke a lot of controversy, and people went back and said: "How did you do the study? How did you do the evaluation?"

They put big holes in it. So my argument is that we have seen very few social programs in this country of any prospective evaluation designed into it, and it is not because I think people don't want to do it. It is politically difficult. It is conceptually difficult, and mechanically it may be awful, but I am still young enough to believe in it.

COMMENT: I think that the panel effectively ducked the question that was coming from back here in regard to patient or consumer participation in the establishment of standards of health care and its quality.

I would like to return to that a moment, if I could, because I wonder if that might be at the heart of the trouble, or at least part of the trouble, with the health scheme or the pathology of the health scheme at the present time.

For example, it does seem to me that if we are establishing standards for quality of process or quality of outcome, that the consumer or the patient with hypertension, or a panel of patients with hypertension, adequately educated might be an important resource in determining some of these standards.

I think that we are working in a profession or a service area which sociologically places the physician at the very top and sometimes I think in this kind of a scheme, because we in a sense have a monopoly on creativeness in this particular field. Sometimes I think we do overlook the role that other groups might contribute to the establishment or innovation of something that would be better, and following this line of thought, I would like to ask the panel if they really believe that the methods that they are working with, and describing, have any chance, at all, of modifying the system in a way that is going to be beneficial to the health of the American people.

I want to ask if they might think that some-

thing more radical would need to be done if we were going to do that, and also, I wonder if they think that a lack of competition in the health field might be at the root of the problem, and that perhaps we ought to be thinking of allowing the patient again to participate in judgments by giving patients choices in regard to alternative care, alternative sites and personnel for their health needs.

DR. BROWN: You asked about four or five questions. I will take one little part of one, and that is I think there are some of the things certainly that we have been doing, we think we have achieved some kind of change, like I guess it is better if you don't do an operation that is not necessary than if you do it.

We have substantially reduced the number of operations people are doing in certain areas.

I guess it is better not to have a complication of an unnecessary operation sometimes, or even a necessary one, than to have a complication, and we have seen a fair reduction in complication rates in certain operations. So I guess we are having some little kind of impact, but unless somebody is going to say: Maybe it is really best in the long run to have an operation sometimes, even if you don't need it. That is a little hard for me to grab. But in my simple-minded kind of an approach, I think it is probably better not to have one if we don't need one than to have one.

In response and with respect to consumers or patients being involved in this whole process, I think it is probably very important, and I am not saying that from a sort of Pollyannaish way, or is that the neat thing to say nowadays?

It seems to me that an awful lot of things that people die from, that they might die from, or are sick from, that they didn't have to be sick from, are related to their behaviors and those are the things we need to change, behaviors of patients to improve their health or to maintain their health if they already have it. If we are going to do that, I think we have got to give them a role in saying what those behaviors are going to look like because I don't think we can lay it on them.

We are not quite the role of priests that we used to be, I guess, as physicians, and it is just not as easy any longer to just—probably it never was anyway—lay it on the patient. You have to work with him to help him achieve some of these behavioral changes that are so

important to improve their care or save their lives or whatever, but to do that, I think they have to be involved in saying what that behavior is going to look like, but they are probably not going to change. So I think from that standpoint, it is extremely important that they be involved in helping to set criteria for their care. They might just live by it.

DR. PETERSON: I think in addition to the accountability possibly to the public, there is another deeper question involved here, too, and that relates to the fact, which I think you probably identified, that there is very little competition in medicine.

Kenneth Arrow, who received the Nobel Prize, for economics, I think this year or the year before, wrote an essay many years ago when he was at Stanford University and pointed out what a completely atypical market medicine was in.

If this were perhaps any other industry, or general economic unit that acted in the same fashion, it would probably certainly be held in restraint of trade, and it would certainly be antitrust or whatever.

Now, when normally the segments of the economic life of the country do barricade themselves behind all kinds of special arrangements that, in effect, destroy competition, quite obviously the responsiveness to the consumer is diminished.

I think if you were to discuss this with many economists, you would say that this is a classical situation where the government normally steps in because the system is not responding as it would if it were a real market. This is certainly one of the reasons, I presume, why the government is increasingly now entering into medical care all the time.

CHAIRMAN SHORTELL: I would like to ask Dr. Williamson, when you outlined earlier today your health accounting system, you did have consumers on the board of directors.

Having had some actual experience with this, what types of consumers are on this board, and what types of input do they, in fact, really have in terms of establishing criteria or voicing complaints? What form or substance does this input take?

DR. WILLIAMSON: Of the group of nine clinics that have been fully organized and have been running over a year, only two have been

successful in getting and keeping consumers on the board.

There has been a lot of resistance to this concept, so right now it is more theoretical than real, but essentially they have a voice in the value judgments when given a list of alternatives that the medical staff have developed as to which ones they would like to see developed right now.

They ask some very embarrassing questions, and one member had also been a member of the board of trustees of the hospital, and he probably asked the most pointed, sharp questions of anybody as to whether it would be worth the squeeze if you were to go in this direction and do these studies, and then what would be the anticipated cost and whatnot, and provided a very objective, fresh viewpoint that helped with the decision making of the board considerably.

DR. BROOK: I would like to draw an analogy. There is a lot of work being done now in the draft-resistant area, and it goes something like this.

During the Vietnamese War, a lot of doctors got involved in certifying people as disabled, so that they could not serve, and most of these were white, upper-class or middle-class people, and, therefore, these people had a way of coping out of the issue of whether or not they wanted to go to Vietnam.

There are a lot of books being written by sociologists which tend to suggest now that what the doctors did was really counter-revolutionary in nature. By that, I mean they encouraged, they gave out a leeway, a way out of the system, so that the fundamental questions could be avoided, so you could face the reality in a situation.

The same thing could be said of what we are doing, and the question is: Are we providing a system of justification for small, incremental changes in the system we are dealing with, without facing the major questions that face the American health establishment?

I don't know the answer to that question. I don't know the answer of how you bring about change. I think doctors are experts in enough fields without being experts in that one as well.

I would think legitimately that could happen, that a lot of what we are doing could be used as production of small, incremental change which really never gets at the root of the problem, but can justify the establishment to the

point that 50 years from now there would have to be a revolution.

I don't have an answer to that question for you. I think you are going to have to generate your own answer, but we had a very interesting conference with Larry Weed.

Let me make just one other statement. Larry Weed believes eventually a quality assurance system and a clinical record system are going to have to be one part. There will be no separate flows of information. Consumers will get their own medical record, set the goals of their care. There will be one information system accessible to patients and doctors. There will be no extra forms.

When you look at quality assurance, you look at all the logic patterns of all doctors. You take advantage of the computer to do this.

He would see a lot of the stuff that I did as destructive to him because he is focusing on short-term goals which he thinks will just delay the implementation of what he thinks is the ideal system, and he is not going to do it by revolution. But his point would be that it takes away the energy, the intellectual energy in the community, or whatever it is, and he may well be right.

COMMENT: I just wanted to say on this consumer issue that most of our institutions are consumer-controlled except we have called them trustees for so long that we have forgotten that they are consumers, and it is evidenced by the fact that as some of us have attempted to get so-called consumers involved, the more we got them involved, the more they started acting like trustees. I think what we are up against is that we are heavily "cultured" not to interfere in what we view to be professional matters.

I sense in many, despite the rhetoric, when it comes right down to getting people in a room and talking about things, there is an enormous reluctance on the part of trustees and people of that variety to get involved in what they see to be a professional question. They very studiously avoid even very obvious issues because, you know: Who wants to rock the boat? Who wants to precipitate a fight?

They know that all kinds of ruckus is going to be raised if they start poking around in these questions, and it is not a matter of consumers not being involved. They are involved, if they

want to be involved, but they are reluctant to be involved.

QUESTION: I am concerned that our health delivery system appears to be illness-oriented, and the discussion today seems to have revolved around illness orientation, and now we are going to identify a program to measure quality of diagnosis and treat illness.

Yet we seem to be overlooking the preventive aspect of health care where really illness is taken care of before it actually occurs.

Most of this I don't think we have ever seen within our hospitals. In fact, the great majority is cared for in the doctor's office.

Do we not need a quality assurance program to deal with that part of the iceberg that is under the water and that element of our health care system which is delivered outside of our hospitals?

DR. BROWN: It could even be within the hospital. I don't think I know of a hospital in this country—I am sure there must be some, but none we have worked with—wherein their data base for all admissions, or at least all admissions in these ranges where they simply ask the patient: Do you wear seat belts regularly? This is the most important thing we could do to save our lives or most of our patients' lives in this country.

I haven't met a pediatrician in this country yet who knows the most important question you might ask black males, ages 5 to 15, or their parents. The question is: Do you know how to swim? Because most black males, ages 5 to 15, die from swimming, and I don't see that on anybody's data base. It is not even known by any pediatrician that I have talked to.

There are lots of other questions like this, but we seem to think it is more important to look in people's ears and do some of those other kinds of things that we have been doing for 40 or 50 years. But I think we have a big job to do in the area in which you are raising the question.

DR. WILLIAMSON: In our health benefit analysis project which is part of our health accounting, whenever we get a problem, a health problem we are going to attack, we have to identify the population at risk, and then we

divide this population into four subgroups. The first group are those people who do not have the condition, but have an appreciable risk of getting the condition, and we want to say: Now what will be the benefit, cost and benefit, of then trying programs to work with them in the area of prevention?

The second group are those people who have the condition, but have not been diagnosed or picked up, and so the essential management goal here would be to detect these people, to screen, and we say: What is the cost and benefit of screening these people? And we are still talking about the same health problem.

The third group are those people who have been picked up and are receiving care, and that is the largest group for some of them.

The fourth group are those people we call an exclusion group, who are being treated for the condition they do not have.

So you have to take a look, with any health problem, at this matrix that is made up of these subgroups and say: Where is the cost benefit? Where can we get the most benefit of improvement in health for the least cost within one of those four?

So I think you have made a very good point. This is something that has to be stressed, and we often don't. We often don't think that there is anything more than those people that are acutely ill, and I think more and more with quality assurance systems, that the pay-off is going to be, perhaps, with prevention groups or detection groups.

CHAIRMAN SHORTELL: I think many of the issues that we have raised today really will carry over tomorrow, and most of the speakers on the panel today will also be here tomorrow as well as tomorrow's participants.

I want to thank very much the panel and the speakers throughout the day. I think in a subject of this sort, there are so many issues involved. I am afraid we haven't provided too many answers, but I don't think, really, that is the purpose of this symposium.

I think many of the answers, as many of the panel speakers have alluded to, really involve experimentation with the various forms of quality assessment, with defining your criteria to try to evaluate them in your own hospital taking into account the cost involved as well.

The Problem-Oriented Medical Record: Administrative Implications

DAVID MILLER

CHAIRMAN SHORTELL: What we would like to do this morning is to discuss how some of the methodologies which we learned about yesterday can be implemented in an applied administrative setting.

Our first speaker is going to be Mr. David Miller who is the Administrator of the PROMIS Laboratory, and he might have to correct me on this, but I believe that stands for the Problem Oriented Medical Information System at the University of Vermont Medical Center. He is literally Dr. Larry Weed's right-hand man. Dr. Weed, I guess most of you know by now, is the originator of the Problem Oriented Medical Record concept.

Previously, Mr. Miller has held positions as the Director of Comprehensive Health Planning for the state of Vermont and has also been Director of the Cleveland Metropolitan General Hospital. He, also, holds an MBA from the University of Chicago which, as far as we are concerned, is probably his primary qualification.

MR. MILLER: There's a sign hanging back in the PROMIS Laboratory where I work in Vermont that asks the question, "You may be doing the thing right, but are you doing the right thing?" That question seems to me to characterize the quandary in the American health industry today.

A hospital administrator's role over these past years has been generally to organize resources used in the community for health care, to accommodate the specialization within medicine with new facilities and buildings, to seek improved financing of health services, and more recently to promote an organizational concept of a health care system. Hospital administrators have been quite successful in these efforts and certainly deserve credit for "doing

the thing right." However, the many unanswered questions of the American public are brought to focus in such current efforts as Quality Assurance Programs and Professional Standards Review Organizations. "Have we been doing the right thing?" would seem to serve as a useful summary of all of these questions.

Since day one, hospitals have been keeping two sets of records. The fiscal records and their analysis have been the province of the administrator and the board of trustees, while the medical records and their analysis have been the province of the physician and his peers. This separation of cost from benefits is a fundamental fault for which there is no possible functional justification. The price paid by the American public as a consequence of this fault cannot begin to be estimated. Health care has now become one of the nation's major industries. We have been asked for proof that we are, indeed, "Not just doing the thing right, but doing the right thing." The dichotomy we have tolerated in our record keeping makes it virtually impossible to prove that we are "doing the right thing."

To examine a hospital medical record for one patient, entry by entry, page by page, takes quite a bit of time. I believe I would be safe in stating that none of the administrators present this morning have made such examinations on more than six medical records during this past year. I use the figure *six* to hedge against the following possibilities. First, you may have looked at the record completely if a member of your family was hospitalized. Second, you may have looked at the record completely if one of the members of the board of trustees got a billing he didn't think squared with his recollection of services received. Third, you may have looked at the medical record, if the care reflected in that record, was going to be subject to legal action. Your examination in this third instance would not be nearly as detailed as in the first two instances. I picked six records to

hedge a risk but I would be willing to wager that the majority of hospital administrators in this room have not even made such a detailed examination of a single record this past year. We'll skip a show of hands on this question.

A hospital's medical records are notorious for being incomplete, illegible, and poorly organized. And yet, it is this journal of original entry that serves to guide the care received by the patient during his hospital stay. Unlike the hospital's financial records, there are no uniform rules for the way the patient's record is to be maintained. All of the hospital's professional services which the patient is to receive are ordered through the medical record. From a legal point of view, the patient received no more nor no less than that which is documented in the medical record. Yes, medical records are a mess and, yet, they are the very justification for the hospital's existence.

There are a growing number of organizations in this country that currently abstract or propose to abstract from the current medical records certain key information to be linked with costs to prove whether or not we are "doing the right thing." Now if we already all know that the records from which they are going to abstract their information are inadequate, just what, do you suppose, their statistics will prove?

And, assuming these statistical analyses identify any problem for corrective action, how can you as a hospital administrator effect corrections, since the problems were identified from a recording system which is being operated with no rules? Bear in mind that the dichotomy between costs and benefits in our two recording systems will be linked artificially by these statistics. The problems, thus statistically indicated, will lead us back to the source documents for clarification and understanding. From even a crude examination of today's medical record, we know that the patient is not adequately represented by a single or primary diagnosis. We know that resources are being expended to either define or manage a series of health problems represented in one patient's admission. But, our source documents have not been organized nor maintained in such a fashion as to allow us to isolate which costs were for which problems in that one patient.

In the rhetoric of health care we have a litany concerning the pursuit of excellence, comprehensive care, continuity of care and caring for the whole patient. The government is asking for proof that these are more than just phrases.

The proof must be in our records. But, our records are inadequate for the task.

The fact that we have been allowed to create a multi-billion dollar industry around the function of medical care with virtually no effective measurement of its quality is really incredible. Well, we have been caught! The Darling case says so. The third party payers with some nudging by government tell us so. And now demands to form QAP and PSRO programs tell us so.

Traditions and entire philosophies have been developed to perpetuate a separation in fiscal accountability and medical accountability. Correction of this dichotomy will be made all the more difficult by the fact that we, as administrators, have "educated" the entire nation's hospital trustees to think of their role as overseers of the hospital as an institution concerned primarily with fiscal matters. We have told them to leave the real day-to-day issues of patient care and its quality to the physician and his peers. You may not want to think this philosophy is dying because of your close relationship, but the courts think so, the fiscal intermediaries are starting to think so and are also wondering if they are not going to be buried with the passing of this philosophy. And, if you will give consumers any credit for common sense, their clamor for representation on hospital boards of trustees is another note in the death knell for this philosophy of separating costs from benefits. It seems clear to me that hospital administrators and their board of trustees will soon be immersed in concerns with the medical record. It is well past time to begin thinking about that medical record.

In dealing with other complex processes, successful administration has depended upon:

1. identifying the general components of the situation;
2. establishing rules, standards, and procedures which result in a defined system with auditable control points;
3. evaluating the results of the system's operation through examination of those control points;
4. making adjustments as justified by the audit results in the system itself or corrections in the behavior of those operating within the system.

It is through this process of establishing systems that administration can effectively perform its functions of both service and control without personally possessing the expertise of each discipline operating within the system.

With regard to medical care, administrators

must now begin to participate in creating the system, audit and discipline needed to prove the quality of that care. You can begin today, if you will accept the premise that the medical record is medical care.

THE PROBLEM ORIENTED MEDICAL RECORD

The Problem Oriented Medical Record, as created by Lawrence L. Weed, M.D., uses as its structure the four phases of medical action. First is the information for a carefully defined, standardized data base. Next is the numbered and titled list of every problem the patient has that requires management or work-up including social and demographic problems as well as medical problems. The next phase of action is a written treatment plan for each problem, titled and numbered according to the problem. Finally, progress notes also titled and numbered according to each problem are recorded. This is the universe of information for that patient's care in a structured form with the numbers and titles of the patient's problems serving as the table of contents.

Data Base

At the present time the data base is being defined by each physician (including specialists) in a personal way as he sees each patient. The variation in the data base ranges from the most compulsively elaborate to the most slipshod and incomplete. This automatically affects the completeness of the patient's problem list.

The data base includes the chief complaint, present illness, history, physical examination, and routine admission laboratory data. For a variety of reasons, the practice of medicine emphasizes the treatment of acute diseases while neglecting, in the view of some, the total health needs of the patient. As patient load and sub-specialization among physicians have increased, the data base has been determined by the physicians' specialty and interest and time. Undetected problems go untreated until they prompt another visit or even hospitalization.

Now it is at the point of hospitalization, at least, that we can expect a carefully defined, standardized data base to be collected for each patient. Currently that is not the case. Is the hospital's board of trustees liable for the consequences of failing to require defined and standardized data base gathered by admitting physicians?

There is precedent for requiring such data being collected for such public health problems as tuberculosis or syphilis. Why not other conditions, which are achieving epidemic proportions?

A defined and standardized data base is critical to systemizing any activity, whether it is medical care, testing automobiles, or growing corn. If you don't control the data at the starting point, the results at the end point tell you nothing of value to improve performance. The size of the data base is much less important in beginning a system than the fact that the data base is defined, standardized, and rigorously observed. Then, when the end results are examined, the data base can be expanded or contracted based upon experience.

If a board of trustees were just to ask medical staff to establish a data base without setting some parameters, they would start an argument among the medical staff that would produce no recommendations. Every specialist would want included those questions and examinations that are peculiar to his interest. On the other hand, if it is one of his patients to be admitted, he does not really want to agree to personally perform a work-up that will include every other specialist's interests. So the hospital's board should begin with the patient's interests. Health hazard tables have been established for age groups by sex. Start there, asking the medical staff to recommend a defined, standardized data base which will identify problems, should they be present, for that person in that age range in addition to the information his chief complaint requires. As you will see later, through audit, the medical staff will begin to justify modifications in the data base. But this is unlikely to happen until the hospital's board of trustees takes that first step.

Problem List

A complete problem list includes medical, social and demographic problems, because the problem list is the quick picture of the whole patient as well as the table of contents for the patient's record. With a review of the data base the physician is equipped to formulate a list of problems. A "problem" is some aspect of the patient or his circumstances that disturbs or endangers his health (mental or physical). A problem, then, is something that requires

further attention for diagnosis, treatment, or just observation.

A cardinal rule in listing the problem is for the physician to state the problem at his level of understanding. For example, if a patient is admitted with chest pain, it should be listed as such until evidence is gathered to determine whether the chest pain is due to myocardial infarction, pneumonia, pulmonary embolism, or whatever. Physicians have used "provisional diagnoses" and "impressions" and instead of defining the patient's problem, we find that resources are being used to treat the physician's guess.

A complete problem list not only makes possible review to see that any given problem will receive attention, but that it will be considered in the context of the total set of problems. The medications prescribed for one problem may be contraindicated by another problem. Or, the expensive diagnostic tests ordered for one problem may prove nothing because of medications being given for another problem. Just as the medical record is medical care, the problem list is the patient. A complete problem list can help to overcome the disadvantages from medical specialization by keeping the whole patient in front of the specialist.

Now you will find that physicians do not like their patients to have long problem lists, particularly when those problems are outside of their usual competence. In this regard, your position must be that the length of the problem list is the Lord's business, but the quality of the list is the physician's.

In addition to presenting the overall condition of the patient, the complete problem list serves as the table of contents for the medical record by using the number and title of each problem to identify plans and follow-up activities.

Plans

After formulating the problem list, the physician's next step is to outline a plan for each problem. A plan, identified by each problem number and title leads to coordinated care in the following ways. The physician is prompted to think about each problem and consider multiple problem interactions. The plan, titled by problem and number, preserves the logic used in analyzing each problem and makes it possible for consultants, nurses, and other professional assistants involved in carrying out such plans to understand the "why" of their actions. Without the understanding of this

"why," momentary oversights and basic errors can easily go undetected until their consequences are reflected in the patient's condition. Therefore, this structured form of communication is the basis for a coordinated, team approach to health care.

There are three distinct types of plans for each problem. First, a plan for collecting more information to better define and/or manage the problem. Second, a plan for initial treatment of the problem with an explicit statement of procedures and parameters to be followed. Third, a plan for educating the patient as to the nature of the problem and his role in its management.

The plan must be explicit in its procedures describing a goal, parameters to be measured or observed, and the criteria for determining when that goal has been reached and treatment should be terminated or modified. The patient must be made an informed participant in setting the goal for the management of each problem. The patient's awareness of the nature of the problem, its prognosis, and the possible effect of the problem on his life style are items within his right to know. But even more importantly, the management of the problem will usually depend upon his understanding and participation.

It is this set of plans that puts into motion the various skills and resources maintained by the hospital, nursing tasks, orders for laboratory values, radiology interpretations, medications, etc. Once these orders are related to titled and numbered problems, administration can begin to monitor how resources are being employed. The patient's bill can be problem-oriented to realize an integrated cost-benefit picture of the patient's care.

Such a problem oriented billing makes possible the linkage with the logic preserved in the problem-oriented medical record.

Follow-up

The progress notes which also must be numbered and titled according to the problem being considered are used to record and guide the physician's evaluation of diagnostic tests and responses to treatment. Just as medicine is an incomplete body of knowledge and every patient presents a unique set of conditions in which problems are to be solved, so it is that the plans do not always produce perfect results. The physician is expected to perform as

a guidance system making the adjustments in plans as dictated by subsequent events.

In addition to identifying progress notes by problem, title and number, the problem-oriented system structures each progress note to include the following classes of information:

S: Subjective Data. The patient's symptomatic complaints and general status should be considered first and recorded first. Only in this way can a problem be followed from the patient's point of view.

O: Objective Data. Under this category, list laboratory test results, X-ray reports, and physical findings. Flow sheets should be used for problems being monitored by periodic measurements.

A: Assessment. This includes discussion of *severity, diagnosis* (anatomy, physiology, etiology, function), *prognosis* and other changes in the *status* of the patient.

P: Plan. As described in the previous section, the plan should include consideration of *diagnosis, treatment, and education* of the patient. In addition to an overall plan and *goal* for each problem, there will be short range plans recorded in progress notes.

This "SOAP" sequence should characterize the notes of all staff—consultants, surgeons, nurses, therapists—each individual recording observations for the range of problems within his competence. Frequent input from a variety of viewpoints will provide depth in the patient record and facilitate management.

Just as in the initial plans section, each time a new order for hospital resources is made in the progress notes, the problem oriented billing should be updated with the posting of the results in the patient's record.

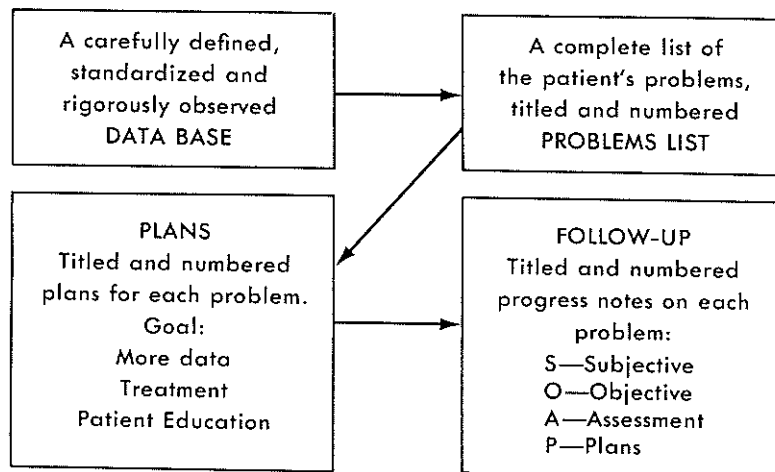
Now, quickly, what are the elements of the problem-oriented medical record?

Now this has been a quick summary of the problem oriented medical record. I have not covered how you resolve inactive problems on this list or handle self-limited episodes as temporary problems. In the hope that you will want to know more about this system, I am leaving a bibliography with Dr. Shortell which I hope will be included in the publication of these proceedings.

Before leaving this diagram, it is important that you understand that the title and number given to each problem in the complete problem list is the same title and number used to identify the plans and progress for that particular problem. So, if problem number 6 is chest pain, we can see what the physician plans to do, if anything, and we can follow the progress of problem number 6 throughout the medical record. And, in the same sense, if your charge system was so organized, each aspect of the patient's care related to problem number 6, chest pain, could be tied to that problem.

ADMINISTRATIVE IMPLICATIONS

This paper was invited for the purpose of identifying the administrative implications of the problem-oriented medical record. We should begin with an understanding of the functions that the medical record is expected to perform. It is the patient's interest that is served by the maintenance of a medical record. And, although this audience is predominantly hospital administrators, we have all come to the understanding that the patient's problems



began before admission to the hospital and most of them will not be resolved by the time of discharge from the hospital. We also know that one physician will not single-handedly resolve all of the patients' problems, but that it will potentially require many different physicians, other health skills, and various institutions in the patient's lifetime to resolve or manage those problems. We have given a label to the goal of coordinating all these different skills and resources that will interact with a patient over his lifetime. We call that goal continuity of care. Just as the patient is the only common denominator among these fractions of the health care industry, the medical record is the only tool which will permit us to define a system of health care from these fractions. The medical record must become the formula through which these fractions can be shown to prove continuity of care, comprehensive care, and excellence in care while at the same time proving the equation, costs equal benefits. To serve these purposes the record must have structure and rules respected by all who serve the patients' needs.

The problem oriented medical record is a system providing structure and rules possessing the following essential characteristics:

1. The whole patient is made the focus of the record through its *complete* problem list orientation as contrasted to those records which are preoccupied with a primary cause of an episode of illness.
2. Excellence in care for the patient is stimulated by the record's structuring around the four phases of medical action and the format within each of those compartments. The practice of medicine is enhanced rather than constrained by this structure and rules for recording.
3. Coordination among the various health skills and resources is made evident through their communication in the record for each problem.
4. The patient can become a participant in the solution to his own problems through goal setting, patient education, and understanding the plans for each problem. (We believe the patient should be provided a copy of his record.)

The problem-oriented medical record is a tool. It does not assure comprehensive care, but it makes shortcomings toward that goal visible. It does not guarantee excellent care, but it lends definition to quality and facilitates audit. Like any tool, the problem-oriented medical record is dependent upon its users for the results it produces. It should be clear that con-

tinuity of care will never be functionally served until the medical record used by all providers is made the respected method for reaching this goal.

As hospital administrators, the administrative implications of the problem-oriented medical record begins by defining the functions of the practice of medicine in terms we can all understand. Within a defined system the physician is expected to practice through (1) getting data, (2) defining problems, (3) setting goals with the patient, (4) stating plans, (5) writing directions, (6) evaluating results, (7) adjusting plans, (8) redirecting, re-evaluating, readjusting, etc. You will recognize that these terms represent the classic pattern of administrative action. Some physicians, just as some administrators, are splendid performers at each of these tasks. But just as with administrators, many physicians have recurring difficulty with one or more of these tasks. The problem-oriented medical record facilitates audit of performance, offering the opportunity for improving that performance and, thus, improving care.

Next, the divisions of the problem-oriented medical record into the four phases of medical action provide the necessary control points for audit. By following each titled and numbered problem through these control points, it is possible to examine for thoroughness, reliability, analytic sense, and efficiency in performance. Thus, the problem-oriented medical record, its structure and rules, with your standards, audit, and discipline give you a self-correcting system of measurable quality.

Finally, the problem-oriented medical record offers us the tool needed to relate fiscal and medical accountability at the point where corrective action is possible. By tying hospital charges to a specific problem instead of a general patient, the hospital can achieve a new dimension in its accounting and management. In this regard, another important point deserving re-emphasis is that the nurses, therapists, and other professional assistants are recording in the same progress notes, using the same discipline. The patient and his problems thus become the focus for team action and the problem-oriented medical record becomes the method of the team's communication.

In conclusion, the problem-oriented medical record is *the* tool which will let us prove that "We are not just doing the thing right, but are doing the right thing."

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The Administrator's Role in Quality Assessment

A. WENDELL MUSSER, M.D.

CHAIRMAN SHORTELL: Our next speaker this morning is Dr. A. Wendell Musser. Dr. Musser is Assistant Chief Medical Director for Planning and Evaluation at the Veterans Administration. He has his medical degree from Indiana University. He is a pathologist by training and has been Professor of Pathology at the Duke University Medical Center, and currently holds that position in addition to his responsibilities with the VA system, at George Washington University.

He has served in a number of administrative and advisory positions both inside and outside of government in addition to his clinical activities. His topic will be "The Administrator's Role in Quality Assessment."

DR. MUSSER: I want to make some comments relative to "The Administrator's Role in Quality Assessment."

We run a decentralized system from the operational mode. The directors and administrators of our hospitals have authority and autonomy like I don't think anyone else in government has.

We believe in the decentralization of these kinds of activities. Of course, the central office must concern itself with policy on a national basis, both in its interaction with other branches of government, and as we try to compete with whatever forces we must confront to get the necessary dollars from the Halls of Congress to operate the system for which we are responsible.

I think probably now, more than any other time in the history of medical care, do we have an opportunity to make a real impact. I want to make sure that somewhere in this activity we temper this effort to increase efficiency and quality with some recognition of the element of the patient as a human being as well as his identity as a patient.

For those of us who have had, in the past, responsibility for quality control in support

areas of medicine, the evaluation of patient care to us is fascinating, stimulating, humbling, overwhelming, frightening, terror-ridden, however, we feel that the process is necessary and in itself has a cleansing effect on the system.

We are very much afraid that we have set for ourselves an unattainable goal, but the cleansing effect may be worth the trip. At least, we are going to say it is, and we are going to take that trip.

Now I am going to steal from the system that I represent today, and try to share with you the idea and the basic assumption that some things we have learned in our system may be useful in other areas of the health care industry, and that there is no need for all of us to make the same mistake in our own individual way just so we can show our individuality at the expense of increasing the cost to the patient and to the economy.

Some years ago we began to develop methods for studying outcome of care in psychiatric patients. I am sure many of you have read the publications in this area. It is only in recent years that we have begun to hone down on the problem and attempt to develop a method that we could use from a systems standpoint.

Our hospitals may belong to a federal system, but they are just as individual in their way of operation as any one of your hospitals are. They have overriding national policy guidance, but their individual operation has to do with what kind of show the top man, the director, the administrator, sets up.

Each of our hospitals runs on the energy, intellect and program awareness of the individual administrator.

So we wanted a method that could be used with the individual hospital but yet would allow us to consider transferability between hospitals which would allow us to apply it to the total system. I will make some comments in a moment as to why that may be important to you because we may be going through the pro-

dromata of a disease that all of us in health care will share as we march into the land of universal entitlement.

It is only recently that we ventured into evaluation of the process of patient care. We have had to look at our system as a corporation because we have to be cost conscious, because the law demands that we be cost conscious, and therefore, we tried to look at our system in a fashion similar to an engineer monitoring industrial flow.

The first thing we did was try to define clearly what was the product. So one day I very glibly went to the blackboard in my office and wrote down: Delivery of health services to patients. As we meditated the concept, we were dismayed to find out that nobody really knew what delivery meant, and that we could probably write an encyclopedia of the various concepts obtained from the individuals gathered in my office.

We said, "Let's move on to the next part," and then we tried to define what health services meant. We got all tangled up in the "cradle to the grave" concept, and the quality of life, because the quality of patient care has to do with the quality of life, and since we were sitting in the middle of one of the most interesting social experiments in the history of this country, the Veterans Administration, I said, "What is health services?" We couldn't answer that. Then we said, "We know what a patient is," and one of my very bright young Ph.Ds. in psychology said, "You do? What is a patient?"

The discussion emphasized the confusion which pervades much of the thinking today as we consider the health care system and its parts. What is the psychological pattern of a patient? If I am worried to the point of frustration and agony, and I am as healthy as anyone on the scene, am I sick? Am I a patient? We considered, in detail, Garfield's grouping: the well, the worried well, the early sick and the sick. Is early sick a patient?

As I used to lecture students in the basic introduction to disease, when I was a professor in the medical school, "gentlemen, as you sit there you are dying and you are aging and you are degenerating. Are you sick?"

We then decided that we possessed, at least, a working definition of what delivery of health services is to patients and that with this in hand we could move forward to consider the various ramifications of patient care.

So we agreed to try to take the medical record,

in all of its horror, as a record of that patient care. We hope we can clean up that horror now and use it, at least, as an indirect and, we hope some time, direct measure of medical care. If it isn't, that is all we have got. So we have to deal with what we have, not with what we wish we had. So we began to study the record and we began to worry about the role of the administrator.

I am very much aware that in this morass of medical care there has to be a top man coordinator, and in my simplistic and pedestrian approach to hospital administration, that is what a hospital administrator is. The administrator must be involved and be a leader in the administrative aspects of medical care. So, obviously, we get into what is the administrator's role.

The administrator must recognize and accept the responsibility for quality which is delivered by his part of the matrix. You know there are administrators who are not in hospitals, that is, there are other parts of the matrix of health services that the top coordinator, the administrator, must accept and recognize. The administrator must personally accept the responsibility for assuring the quality of care. He delegates, but does not relinquish, for various phases of a quality control program. He must have some sort of reporting mechanism of these quality control programs which report to him personally.

You must create an atmosphere that is conducive to critical self-evaluation, a promotion of free exchange of information and ideas.

Everyone of us is approached every day by intramural methodologies for quality assurance which you will call just "my daily administrative duties." But they are quality assurance as far as I am concerned.

In addition, you are approached by outside groups, joint commissions, and some of you in "certificate of need" states are being harassed by this form of accountability.

Unfortunately, many times the communication and the atmosphere of cooperation are not present. You have to want this sort of self-analysis and the communication of that desire to the people below you who support you. This communication is part of the beginning of quality assurance, quality assessment, and to me is one of the crucial roles of the administrator in this program.

Through conferences, communication mechanisms of various varieties, the administrator can focus on problems of health care rather than reacting to individual acts of wrongdoing.

If all you do is react, if all you do is run a crisis administration, you know as well as I that it will be unproductive, unresponsive, and inefficient.

The administrator can develop methods of integrating findings of evaluation with the objectives of your institution, not the objectives of Joe's, your old buddy across town, but the objectives of your institution which I am sure each of you knows quite well. The integration of the intramural and extramural evaluation mechanisms is important and productive of useful information.

We don't do that. We take one group who is harassing us. We react to it. We throw that away and say, "Thank God they are gone," and then we deal with an intramural problem from the laundry, from the kitchen, from the coronary care unit, and oftentimes do not integrate the pieces when they should and logically do fit together.

We have to be involved in cost-benefit consideration. This is a real tough area. How do you do cost-benefit analysis? We cannot continue with the spiraling eight percent of the gross national product. By 1975, 105 billion dollars will be involved in an industry that oftentimes is very clumsy and inept at this sort of cost-benefit analysis. Cost-benefit analysis will allow us to bring about better distribution of scarce resources.

The administrator must develop methods of integrating and disseminating short- and long-range programs. So oftentimes we take the long-range goal as anything we can dream up that sounds wonderful, and the short-range goals are the "doable" things that we can get past the board, and that day has got to go. Priorities based on total institutional resources and needs: This is quality assessment.

One must consider needs versus desires versus committed resources. How can you not involve the consumer? I think that his desires may call the tune for the legislative march under which you and I will have to operate.

The development within your own institution of a reporting system and a control mechanism for the reporting system, a system that identifies what is being done, not what you think is being done, is essential.

The administrator has the opportunity to

blend the administrative type reviews with the professional reviews. The authors of these two reviews view themselves as separate and different and I contend that they have much in common but use different tools. The group must recognize that their long-range goals are identical, and understanding of their respective roles is essential for attainment of those goals.

The administrative officer is the first one who must take into consideration that evaluation is not free, teach his staff this, and make the necessary reprogramming that will allow him to support evaluation studies. Evaluation does cost money as was so eloquently discussed by Dr. Williamson.

The administrator must recognize the legitimacy of the consumer as a participant in health planning. Despite the consumer's lack of technical expertise, he should have major input into policy and operations. I think at this point in time consumerism has fallen on a rocky shore because of our ignorance. I think it is a sad thing what we did to the consumer. A consumer is an essential part of policy. He can be an essential part of operation, but when you put him in a position where he must make technical decisions that are governed by licensing laws, we have made a mistake. A great deal of anti-consumerism feeling has been created and many people object to their involvement in health affairs. The consumer must be involved. The total involvement of the national economy demands his involvement. We think the consumer should be involved, and he definitely is in our national system through Congress and his service organizations.

Next, the administrator must avoid unproven stereotypes concerning quality. By explanation, any teaching hospital that thinks it is rendering high quality care just by process of definition and identification and label is wrong. They must develop their methods as will all hospitals. In addition a smaller hospital without a teaching program does not need to be a second-class institution. One must also disavow the concept that quality of medical care cannot be measured. Maybe that is true, but we must attempt to measure it for some of the reasons I have listed above.

The administrator in his daily operation must demonstrate concern with the details of the methodology, not only with the recommendation. The administrator has to guard against many things. A quotation often used in Washington exemplifies one of these: "Governments are very keen on amassing statistics.

They collect them. They add to them. They raise them to the nth power. They take the cube root. They prepare wonderful diagrams, but you must never forget that every one of these figures comes in the first instance from the village watchman who just puts down what he pleases." The administrator must concern himself with the details of the methodology. How did one arrive at the number? What is the validity of this number? What is the validity of the method? What is the reliability? Which watchman collected this? He must reward in this process the superior performance. We are always going to award people in our show who exhibit a superior performance in the delivery, but you have to think about these individuals who are involved in the nitty-gritty of the evaluation methodology. It is very easy to forget that they are there.

The national system of health care now evolving will probably be multifaceted. The people of this country will not accept a truly national system: that is, a system similar to that of Sweden, New Zealand, Australia, Great Britain and Germany will not be accepted wholeheartedly by the citizens of this country, and we will have some national entitlement approach with possible involvement of third parties. Most likely we will consider the interface of the patient with a matrix of health services rather than the simplistic consideration we now take of the interface of the patient with a hospital, with a doctor, or with a clinic.

We have regionalized our system of 170 hospitals into 37 districts throughout the United States. We have done this in an effort to do what you want to do, make the system more accessible to the patient and bring him a wider array of services in a shorter response time at the minimum of cost with the maximum of quality. Of course, this regionalization alignment not only requires a formal means of evaluation of patient care but in addition becomes the framework for its establishment. Therefore we began the development of a patient care evaluation system.

We have a system and we therefore have some kind of responsibility to it, and with responsibility comes opportunity to use it as a laboratory. That is the reason I came to Washington because we have a fantastic, beautiful delivery laboratory, encumbered by restrictive laws and regulations, but also endowed with many varied opportunities.

The medical district is evaluated by a team picked by the administration of each of the hos-

pitals in the district. The team is equipped with various tools prior to the visit. The evaluation mechanism, as was stated before, is composed of several tools. One of these tools is the service profile review. The Professional Service Chief is involved, and therefore this portion may be looked upon as continuing education quality.

In addition, we have a peer review-type section. Peer review on the basis of a methodology, a tool, an instrument, a devised instrument that will allow for a more objective assay. Explicit criteria review is another portion.

Staff satisfaction, which is so often overlooked, is part of our quality assessment program. Out of the staff satisfaction review can come a tremendous amount of information about the environment that the administrator never really gets a chance to know. How does your staff feel about your place? The fifth part of the evaluation program is patient satisfaction.

All of this material is made available to a survey team prior to the visit to a hospital. It is made available to the hospital administrator prior to the time of the team visit. These are used just as guides and tools for the team review: an overview of the hospital from the standpoint of patient care and evaluation.

As you heard yesterday, part of the program is diagnostic outcome which we intend to work into the therapeutic outcome. We are working at this point only on medical and surgical patients. We intend to extend this to our some 32,000 psychiatric beds and eventually interweave the information into a total package.

We think that the time will come when you as an individual hospital will have to begin to think of the matrix of your community, the matrix of your county. The system as it is now evolving will demand that you begin to think of the system's interaction as a matrix rather than as disconnected units.

In closing, I would like to hammer home a final thought. I have spoken at length about consumerism and the legitimate rights of consumers to be involved with us in planning and setting goals for your, and their, hospitals. Do not for a moment forget that you are the consumers of both managerial and professional quality assessment. So although we recognize the necessity for wholehearted support of evaluation as the only method by which we may lift ourselves by our bootstraps, still, be wary of the professional evaluator as he comes pur-

veying his wares. Examine carefully, and do not be lulled by his arrays of figures. I do not remember the exact quote but Albert Einstein said something like "Don't tell me the conclusions of a researcher, just tell me what he did and what were his findings." Do not be reluctant to question the conclusions and recommendations of your evaluation staff but do study their data.

Before being taken in by the razzle dazzle of some high powered monitoring equipment consider your priorities. He who picks up one end of the stick must pick up the other. Support of one program is always at the expense of not supporting another.

As yet, we do not have a Consumers Report for quality assessment. *Caveat emptor.*

PANEL DISCUSSION

Where Do We Go from Here?

STEPHEN M. SHORTELL, *Moderator*

Panel Members:

DAVID MILLER, *Administrator, PROMIS Laboratory, University of Vermont Medical Center, College of Medicine*

A. WENDELL MUSSER, M.D., *Assistant Chief Medical Director for Planning and Evaluation, Veterans Administration, Washington*

RONALD ANDERSEN, PH.D., *Center for Health Administration Studies, University of Chicago*

CARL I. BERGKVIST, *Bryn Mawr Hospital, Bryn Mawr, Pennsylvania*

ROSEMARY LOVE, *Martin Luther King Neighborhood Health Center, Chicago*

KENNETH PRAEGER, M.D., *University of Chicago Hospitals and Clinics*

MARTIN WALDMAN, M.D., *Commission on Professional and Hospital Activities, Ann Arbor, Michigan*

CHAIRMAN SHORTELL: Our speakers yesterday and today have posed many issues and challenges. How does one implement such a program? What is the role of the consumer? These are but a few of the questions addressed. With the help of the panel and your questions, I hope we can explore them further; especially in terms of their day-to-day implications.

Carl, we welcome any comments or thoughts which you've had.

MR. BERGKVIST: I tried to figure out why I have been asked on this panel. I think I finally figured it out. One of my roles that Steve didn't mention is President of the Hospital Association of Pennsylvania. I think that is why I am here, because as you may have heard, in Pennsylvania all of our hospitals don't have the problems that you are discussing here today because we have been certified to be rendering the highest quality care in the most efficient manner at the least cost of any state in the United States.

Now we have been so certified by Dr. Denenberg, and if any of you would like to avail yourselves of his services to certify you in the same

way he has certified us, we would be pleased to gift wrap him and send him to you as a CARE package.

I think all of us who are in the hospitals have been stimulated by the theoretical concepts that we heard advanced yesterday and perhaps some of the more practical ones this morning. They have been very stimulating, but we have been sort of frustrated, I guess, also by the realities of the time constraints under which we find ourselves, and perhaps, Dave, if we had listened over the years a little more to Larry Weed's evangelistic fervor, as he went about proposing the problem-oriented medical record, we would be a little better off. But Steve alluded to the fact that our hospitals, some time ago, elected to participate in the demonstration project with the AHA to see if we could demonstrate the workability of the QAP program. We haven't come to that with that demonstration, but we are working on it.

The reason our hospital, our medical staff, the administration and the board decided they want to go this route was that we feel very strongly we would like to retain peer review within our own institution rather than have it

imposed from without. We think it is more meaningful if we can do it in that fashion, and that is what we are about.

We found some interesting things as our medical staff has attempted to develop criteria under which it is going to evaluate the quality of care rendered. Its first shot at the criteria developed a laundry list as was described yesterday, and when it then checked out the records in those disease categories, it found that very few of them met the criteria which they, themselves, had established. So the staff went through the process of refining down the criteria to a probably more workable and practical aspect.

One thing that Dave Miller said that I hope he will amplify on a little bit, and I will give him an opportunity to do so in a minute, which challenged a few of us, and perhaps it came across in a different way than Dave meant it to: he said he detected a reluctance on the part of administrators to concern themselves with or become involved in medical records or their quality.

I challenged this, and we had a little side bar conversation on it, and I think perhaps Dave could shed a little more light.

MR. MILLER: My comments were related to the fact that hospital administrators and their boards of trustees have been worrying about one end of the health care business, and a physician and his peers have been worrying about the quality end of it. I do think that we have developed a philosophy and a tradition after many years of formalizing this relationship, and what Carl is asking me to say is that I am not suggesting that we just all decided in Day One that is the way it ought to be.

Clearly, physicians have jealously guarded their prerogatives about medical care. I don't know of any hospital administrator who, going through his residency or early experience, hasn't found out what it means to trespass into that area, so that to some extent, certainly, it is a conditioned philosophy and a conditioned tradition.

But I would like to turn around and then put the burden on the other side of the coin and say when we talk about having consumers come on the board, and unless they are health care professionals, they all start out like consumers when they come on the board.

We go through this game called "educating the new board member." You know what that

means. That means he is not educated until he thinks about the world like the hospital administrator sees it, and the hospital administrator has been conditioned not to look at the medical record.

Now that is what I am talking about, and that is a hurdle, and that is the problem.

CHAIRMAN SHORTELL: I think as we go along here, we will take questions from the audience that come up. So if any one has any questions on anything at this point, let us hear them.

COMMENT: Before I attended this conference, I thought I knew what high quality care was. Now, I don't.

CHAIRMAN SHORTELL: A successful conference!

QUESTION: I would like the panel to address itself to what I consider an ethical problem, and that is the invasion of the privacy of the patient.

A patient comes in with a broken leg. Gathering this data base, admitting him to the matrix, means that you are going to do a cardiovascular work up, blood work and rectal examination.

Does the patient want all this? Never mind the cost of it. He just wants his leg set. Now is it good care to do all this, collect all this data base, or is it not good care?

CHAIRMAN SHORTELL: Dr. Praeger, do you want to address that as a beginning?

DR. PRAEGER: Coming from an academic institution, if somebody did not do a rectal examination on somebody who came in for a hangnail, I think that we would consider his work-up incomplete. So I obviously approach the problem from the academic institution point of view, which I think I can defend on certain grounds.

Number one, in an academic institution, we are trying to teach physicians as well as provide good quality care, and if we do not insist that patients get rectal examinations even for what appear to be problems which do not necessarily involve this, we may be missing a rectal carcinoma, perhaps, in just one out of 100 or one out of 500 patients. I don't know, but we are not teaching people to be good physicians, at least, not according to the guidelines we have set up.

I think this problem comes up fairly fre-

quently in terms of invasive procedures, in terms of costly procedures, in terms of hospitalization which may be fairly prolonged, and which may not necessarily hone down on a specific problem. So I think that the question that you asked is a very complex one, at least, from my point of view.

Our obligation in terms of training physicians properly may at times be at cross-purposes with what the patient thinks is all he needs, and are we infringing on the patient's right, therefore, and his expectations by doing things which he may not see the need for, or want, in order to further medical education. So I am sort of reversing the question, or perhaps looking at it from a different point of view.

QUESTION: A patient who asks for admittance in a university hospital has an implicit contract that there are medical students, that there will be these kinds of invasions, and he is agreeing to them when he admits himself into that hospital.

How about the community general hospital?

DR. WALDMAN: I would like to try to talk to that for just a minute.

I suppose that if a fractured leg walked into a hospital, then all I would do is take care of the fractured leg. But unfortunately, or fortunately, as the case may be, that leg is attached to a patient, and while doing a rectal exam may do nothing to take care of the leg, I don't have the responsibility, even though I am a surgeon, and Dr. Peterson may argue with me—I don't feel that I have a responsibility just to take care of the leg.

I feel there is a responsibility to take care of that patient.

Dr. Praeger's point is well taken, but in the community hospital, we are responsible for the health of the patients, or at least, we are trying to learn to be responsible for the health of them, not just to cure their illness.

You can't legislate good health, and I will go back to your point about the patient's right of privacy because you realize he gives that up the minute he walks into the hospital. Try feeling private walking around in one of those gowns with a hole down the back of it, or performing your most secret body functions in the middle of an open ward on a cold steel can. There is no privacy. I think the patient loses whatever right he may have had to it in those circumstances.

We can't legislate good health care. We can't make sure that patients wear seat belts. We can't stop smoking. We can't stop drinking, but at least when we have that patient in the hospital where he is a captive of the system, we can, I think, in all good conscience, do those things that the present state of the art tells us will help us to protect that patient against diseases for which he may not presently be ill or sick, and what is sick, but he may be at risk for.

DR. MUSSER: I think this is an extremely important question you have asked and it is one that we have to wrestle with. I am afraid it is so terribly complex that the first thing we need is an anatomist who can dissect this thing into its component parts.

One of the things we are facing, which goes right along with this in a basic minimum data set, is what the basic offering should be to this sort of problem.

It becomes crucial to us in our environment because our entire organizational setup is based on a disease-oriented system, rather than a patient-oriented system.

Of course, I submit that any system based totally on disease orientation is not the total service to society, that we have got to get back to looking at the total patient.

When you ask that question, you ask the question that we now face in relation to the incidence of cardiac catheterization. Why does X-hospital, which will never have the expertise for open-heart surgery or any kind of cardiac surgery, have to have a cardiac catheterization laboratory, and why are they doing cardiac catheterizations? Because somebody has to learn.

When is a procedure diagnostically necessary, and when does it come under the concept of assault and battery? This very complex ethical conundrum that weaves its way into any program for quality assurance, and for cost-benefits analysis, is extremely complex. There isn't any really simple answer to this.

We have to take the component parts of it and deal with it. Your comment relative to the privacy and the sanctity of certain kinds of information is a tremendous problem in this area. That is why we have a council of approximately 200 lawyers whose total job is to protect the rights and privacy of information on patients that are under our ward.

I have never been able to understand the intricacies of this. I probably never will. Probably that is why these guys will always have a job, but this problem comes into play.

Are you violating the patient's individual rights and the doctor-patient relationship if a hospital administrator pages through the chart? There are some people who say yes. I happen to think that is idiocy because I believe in this worn-out cliché of a group of people, a team. I even hate to use the word because it turns people off, but there are a group of people involved in medical care, and there are people who do not have an M.D. degree.

MRS. ROSEMARY LOVE: I happen to, and many consumers, regard health as a right to the individual, and one thing that has not happened, is that he has not been given that right to be a healthy person growing up and becoming an adult, in many instances, when you look at it from an economic point of view of the individual patient.

I personally would condone having the total workup because so many people do not realize that they are ill, and that what we should direct our society toward is preventive medicine. You hear very little of it.

A few years back when the health center movement started, you heard quite a bit about the preventive health care, and somewhere it got bogged down because they realized that so many people have been kept out of the health care system until you still had to deal at the site with tragic illnesses, and that you had to deal with crises in medical care.

When you talk of a community hospital, that is another term that has to be defined. It depends on what group you are talking to because so often a hospital is called a community hospital when it is applying for funds, and does not serve the residents that are immediately around it.

I think we have really got to start thinking in terms of developing a health care system and using the term where the hospital is not separate and apart from the other components.

I will give you an example. So often we have these programs that concentrate on one particular kind of illness, and that is all they will worry about, taking care of an individual, when a lay person on site can see that other things should have been done to make this person a whole being and a healthy being.

I think one of our problems that we have in

this city, when it comes to education, one of the Board of Education's problems, is that so many of its youngsters have hearing deficiencies. They have eye deficiencies, and so forth, and you find an absence of institutions like hospitals even cooperating to deal with these corrective kinds of things, and where we find many of the same people that sit on the board of trustees of your hospitals and many of the administrators and the physicians assigned to the hospital are also somehow related to other kinds of institutions. You find that, and I am sure most of you are more aware than I am of the kind of an illness many of the poor people from the ghetto, inner city, or whatever terminology you are going to use, that are born into the world handicapped, diminishes their right as they grow up to this right of quality of life and so forth.

What I am referring to specifically is this disease that is not discovered until the child is about seven years old, where at the time the mother was pregnant, toxic poison happened to the fetus, and when the child was born, it wasn't discovered. Thus, mental retardation set in and so forth.

What I am saying, I guess, is that for the disadvantaged person this whole idea of having this data bank and patient workup to correct these illnesses in order to give that person somehow a more even chance in living to his full potential, that all human beings should have.

I look at the criminal justice system. If a traffic policeman stops you for violation right out in front of this university, within 60 seconds he knows whether or not there is a warrant out for you. He knows all about you from his radio. He gets this information electronically and can tell whether you are wanted, whether your driver's license is valid, etc.

I would like to go even a little bit further and see developed a kind of medical record system where you have a central location so that wherever the individual is, if he should become ill or have to go into a hospital, that hospital could tap into this computerized network and find out all of this information, rather than have it central to each individual hospital. Because people are mobile, there would be something on a national basis.

COMMENT: I would just like to make a few comments. When I was in medical school, I was taught that a good physician will put his

finger into every available opening. I think that is still a pretty good dictum. I think that instead of an invasion of privacy, most patients will appreciate a total and complete physical examination which they probably have not often obtained in their lifetimes.

I am a practicing physician, and I know by experience that many hearts are listened to through a closed shirt. On the other hand, implied consent or consent should always be obtained from a patient and possibly in writing because many physicians have been sued for assault and battery simply on that basis, that if a consultant comes in and examines the patient without the patient's knowledge, later he may be hit by a suit for assault and battery.

The other side of the coin is that if you don't look, and you just set the broken leg, you may be in for a malpractice suit for having missed a rectal carcinoma.

I would like to have the panel address themselves to what in my mind is a drawback to medical practice, and that is the whole concept of the malpractice suit. The malpractice suit was alluded to yesterday as a spur to better health care and better health care delivery. On the other hand, I can foresee that many physicians do not do certain things which they should do for fear of being involved in a malpractice suit.

I think that the medical profession should address themselves to the legal profession in terms of the malpractice suit and where it is leading us in this country.

MR. BERGKVIST: Could you amplify that a little bit further? I have always heard they would do things they wouldn't otherwise do for fear of malpractice. Now you are saying that they don't do things that they should do because of the fear.

COMMENT: I am suggesting that it works both ways. For example, for a long time physicians would not stop on the road to help a patient who might have been in an accident because the laws were so set up that if he got involved, not as a first aid man, but as a physician, and something went wrong, he could be sued for malpractice. Many states have adjusted this law.

But for example, we have been talking about the abundance of coronary care units, but I can see in the future that if a coronary patient is not admitted to a coronary care unit, the phy-

sician may be sued for malpractice if that patient dies because he did not receive what is thought to be optimum care.

The same goes for the battery of laboratory tests today. We submit a patient's blood sample to an automatic analyzer and get a battery of 12 tests, whereas, in reality maybe we need three out of the 12, but if the 12 are not done and the patient suffers some adverse reaction later, the lawyer will say that the appropriate medical care was not given or that it was available and was not used.

DR. MUSSER: Again, we have the responsibility in the malpractice area for 5,400 M.D.'s as well as a number of dentists and doctoral people of other levels. We have dealt with this problem as a factor not only for positive input in quality assessment, which I feel, if that is the methodology by which we are going to approach quality assessment, I am not sure that I want some of it, but also from the negative aspect which is what you are talking about.

I think that as we approach, and I hate to put these two in the same discussion but I think there are some similarities—the no-fault insurance, car insurance aspect into the malpractice aspect—if we have a quality assurance, an evaluation mechanism, an accountability mechanism built in that aids the physician and therefore the patient, then we can begin to think of this malpractice basis not just from the punitive standpoint. We are trying to study it not from the standpoint of getting somebody, but looking at it from the patient's standpoint.

What is the problem of the patient as a result of his experience with the health care delivery system? How has it interfered with his rights, privileges, and that indefinable thing called quality of life, and how does one relate that to some monetary figure, if that is the problem?

We think that the basis of malpractice, as it is now practiced in this country, is a terrible negative situation, and it is high time that at least in our own system, where we can—I hate to use this word, but actually control a little bit more the basic approach to malpractice, that we look at it from the standpoint of rehabilitation, reparation and not from the standpoint of some punitive action.

I must confess we don't have very many answers at this time, but this is the approach. This is the methodology we are trying to use.

We have a few studies underway, along this line, with the aid of some very fine universities. One of them is a group at Brandeis and maybe the thing we are trying to do is impossible, but rather than looking at just an accounting sheet on health, to look at the entire social picture, the benefits of a certain group of people who must get help for their housing, who must get help for food, who are disabled, who must have an attending nurse, who must interface with the public health service, who must go to the neighborhood center for something or other and take the entire spectrum of social benefits, most of which are paid for by tax dollars, and see how this impacts on the health care system.

Now part of that study, not the primary push, would be: How do you protect, in this kind of total environment, the participants—not only the physician, but the nurse, the social worker or anyone else involved? How can you legally, within the area where this is operating and the under-practiced laws of that area, make this thing operational? Because if these negative kinds of restrictions are operational in this environment, not only is it an impediment to health care as far as we are concerned, but it is an impediment to all these other things that we, in our system, are responsible for.

MR. MILLER: I do agree with Dr. Musser. I would like to approach it from just a little different angle.

I think, first of all, patients have the right to remedy, and unfortunately that remedy has been on the increase because we don't have a defined system and not everybody is playing the game by any set of rules that we all understand.

I heard an attorney in Cleveland, who enjoys the practice of pursuing malpractice suits, address a medical staff in a hospital and explain three cases that he had just handled and made some generalizations out of this.

First of all, the malpractice suit is generally initiated by the individual, the patient, and there are causes for that. Many of those causes can be interrupted or overcome, depending upon the relationship that has been established with that patient.

When we try to talk in terms of a recording system which has rules, we are talking about an adult relationship for that patient with the physician. We are talking about the patient and the physician both understanding what are the total sets of problems. We are asking the

patient to participate in setting the goals for the solution of those problems, and follow the plans for them.

Not all the goals get met. Not all the plans get followed, but you now have an adult relationship between the physician and the patient.

From what I can recall of what the attorney described as the basic causes for malpractice suits, this kind of a relationship would certainly serve to eliminate many of them.

COMMENT: I would like to point out as a partial response to the gentleman's question, something that isn't going to be the definitive answer, but in the event that a medical staff has gone to the trouble of establishing what it considers valid criteria for the management of a particular clinical entity and has committed these to a record somewhere, the physician confronted with a malpractice action in this area does have some support.

Of course, this isn't going to stop the initiation of a malpractice suit if a determined lawyer and a patient are involved, but it does help to provide the physician in question with a certain amount of backup and support in fighting the action.

CHAIRMAN SHORTELL: Let me ask a question that has been on my mind. Yesterday, and I think a little bit today, there has been a lot of talk of employing some of these new methodologies in terms of quality assessment and the issue of how you motivate or change physician behavior. How do you get them to go along with some of these things?

I am somewhat curious, and it was raised by a couple of other people, I think, in terms of what are the implications here for medical education. It appears difficult to change the behavior of physicians once in practice. But it is another thing in terms of 21-year-old students just coming into medical school. What is there about the educational process in terms of monitoring the quality of care, in terms of learning to work with nonphysicians, in terms of seeing some of the implications of these organizational relationships once he gets into practice which might be done in the medical school setting? What is going on at this level?

DR. PRAEGER: I think at the present time there is a tremendous vacuum in this particular area because, at least in the academic institutions that I have been affiliated with, both as

a medical student and a house officer, there is little awareness on the part of the house staff of certain standards which may exist for quality care, mainly because such standards are not very explicitly relayed to him in a general context.

In other words, when we are dealing with a particular patient, with a particular illness and a particular diagnosis, the attending physician may discuss the various differential diagnoses and the management of this particular patient. But, I think in terms of a broader overview to the problem of how to relate with patients, how to follow them thereafter, how to make their hospital stay most profitable in terms of the amount of time and money spent, I think there is very little which is really done in this area. Frankly, most house officers and most medical students would be very receptive to an intelligent and organized approach to relay certain standards to them. I think they feel the need for this, although they, perhaps, may not articulate it.

You have to realize it is an overwhelming thing to go from medical school and all of a sudden be an intern and be faced with sick patients right and left. You are, by and large, faced with the most sick patients that there are because you start off with inpatient care. You are groping. You have to rely upon what your attendings and residents tell you. It is just a very haphazard system, and if a house officer happens to come through the system at a particular place and comes through with certain criteria and standards of quality medical care, great; but there are many instances when this actually does not occur.

So I think that setting up criteria, the sort of things which were discussed yesterday, as I understand, would really be welcome by most people in medical school and house officers, and I think they would realize that it is for the ultimate benefit of the patients and also give them something to really grab onto in terms of monitoring and assessing the quality of care that they provide.

DR. WALDMAN: I want to offer again that there is a little light on the horizon. There are efforts, and I believe there were a couple of contracts left from HEW last year or a year and a half ago, to develop curricula at the undergraduate level on medical records, the assessment of quality of care, medical audit and utilization review. I know one of the areas where

the curriculum was developed was at the medical school of the University of California in San Francisco. That particular curriculum in a pilot study was offered this past semester, and some reports I have were that it was very successful. The curriculum is now being written up and hopefully will be promulgated to the other medical schools in this country. So there is some hope, and there is some effort being made to get this kind of information to the medical student at the undergraduate level.

You will find that in many of your hospitals they are beginning to get house officers sitting in on medical staff committees so that there is some graduate training, however unstructured at the present time, in these same ideas and the same techniques, and I for one am very glad to see it because I remember the first day, not so much when I came into a hospital as an intern, but when I finished my residency as a surgeon and joined the staff of a hospital. All of a sudden I found out, out of a clear blue sky, that I was expected to work on a committee. What was a committee? What was it supposed to do? And nobody could tell me what it was supposed to do. All they could tell me was what they did. That is not an answer.

CHAIRMAN SHORTELL: In both of these experiences, I am curious as to the role of the hospital administrator.

DR. WALDMAN: Are you asking me, Steve?

CHAIRMAN SHORTELL: Yes, also Dr. Praeger, if he wants to comment.

DR. PRAEGER: Since I am sure there are many administrators in the audience, perhaps it is appropriate for me to say at least in academic medical institutions the administrator to the average house officer is a person who is using up money which could much better be assigned to better laboratories, more drugs, more diagnostic procedures. Administrators should have fewer offices, should cut their staff in half, and any time they hear of a new administrator being added and so on, it is obvious, at least to the house officer, that the money could have been spent in a much better fashion if they had given it to him, the house officer that is. So I think that there is very little com-

munication between house staff and administration. I think there is very little concept of the problems that an administrator faces.

The reason I can speak with some greater sympathy for administrators is that I spent two years on an Indian reservation and found myself in the position of administering a 33-bed hospital after one year of internship. So when I returned to my medical residency, I wasn't quite so glib in criticizing administrators or in dismissing their problems.

I think that, again, I would like to just make this one sort of generalization. When you get a medical student, when he leaves medical school and begins his internship, first of all he usually is the most idealistic he will be the rest of his life. He starts off with a certain quantity of idealism which is probably at its greatest in the first-year of medical school, diminishes somewhat by the fourth year but not very much, is very high as an intern, but somehow by the end of his residency or fellowship, that idealism has really dropped to a very low level.

I think there are many reasons for this, and I certainly can't go into all of them, but the point I want to make is that at the present time, we don't make use of this idealism when the individual begins his internship because we place a premium on diagnosis, on pathophysiology, on being smart on rounds, on reading the literature, on just being a brilliant diagnostician.

We place a terribly low premium, the lowest premium, on quality care in terms of how you relate to your patient. What is going on at home? What kind of life is this patient going to return to? What kind of followup is the patient going to get in the clinic? That is why I answered before that I really think there is an enormous need for some kind of guidelines. If the hospital does not set them up, then it is up to some sort of organization or system above the hospital, perhaps national medical associations or something to set up guidelines so that the student's idealism and the intern's idealism will not be frittered away, so he will have something concrete to relate to, in terms of his care of the patient.

I certainly think, I might add, that there ought to be some way in which administrators and house officers might just get together to talk things over a little and to view one another's problems.

DR. WALDMAN: I guess the expression has

been used "Beat a dead horse," but there isn't a dead horse on this platform, so I guess I will repeat what has been said a couple of times, and that is, that the administrators—and I am going to take this from both sides, both the administrator and the medical side, and I will probably chew on both parts of the hospitals—have abrogated a responsibility for medical care by staying away from it, by being afraid to get involved in what goes on in the hospital medically speaking, and that abrogation has, indeed, carried itself right down to the medical record. I think that is a fault.

The physician has abrogated a responsibility for controlling the quality of medical care by insisting, up until not too long ago, that everybody else stay away from his records. I don't think that works, because the only one that loses is the patient.

I have been trying to think up a better word than "teamwork." I don't want to turn people off either. Maybe partnership is the word, but partnership usually involves equality of the two people involved, and I don't think there is an equality.

The legal responsibility is very clear in a hospital. It is in the board, and the administrator's old hack phrase: The Board in residence. Fine, I think that can be recognized.

The administrator, while not perhaps being technically competent to judge the quality of care, has the responsibility to make sure that the medical staff does, indeed, systematically examine and control the quality of care being given in the hospital.

But along with every responsibility, of course, comes some kind of not only responsibility or authority to do, but comes responsibility. I don't think the administrator can discharge his responsibility by just saying to the medical staff: "All right, you go out and show me what good care is, and show me you are doing it."

I think he has to help. Maybe there is a partnership at one level, at the level of actually implementing a systematic way of looking at the quality of care.

Physicians have tried to do it. You know, tissue committees, that sit down and leaf through charts and try to figure out what is going on, and maybe the medical record librarian is present, or the medical record administrator. And maybe he or she is not present, and maybe the physicians can read the medical records and try to find out what is going on, and maybe they can't.

There is a manpower problem. There is a problem in establishing a system and making it work.

I think the administration of a hospital has the authority to make sure that it works. I think they have the responsibility to provide support to the physicians who have to carry out the technical aspects of it. Support in terms of assisting them with clerical function, of providing medical records, of providing a data system, of providing the tools that the physicians can use to evaluate the quality of care just as importantly as they have the responsibility for providing the other tools that physicians use in taking care of patients.

COMMENT: I would speak only to second what Dr. Praeger said. Those partnerships do go on.

I am a practicing physician involved in primary care, also a voluntary chief of staff of a 400-bed community hospital. I am here to learn at the invitation of my administrator.

It occurs to me in listening to the speakers for the past two days that we are going to add appreciably to the cost of care with doing this thing.

I am concerned about the costs of care. In our hospital, when someone is admitted from one discipline, if we are to institute this type of recordkeeping, it will, of necessity, require that each patient have a generalist or a family physician to attend him to collect data, to evaluate problems which the man limited to one discipline cannot do.

I am asking what impact, or are there any figures, to indicate what that will do to the cost of care in this country, and what it will do to the cost of caring for people in the hospitals which are now constrained under Phase III from increasing their costs. I sympathize with administrators in that particular respect.

MR. MILLER: First of all, it has been said a few times in the last couple of days that quality of care, whatever that elusive thing is and the measurement of it, isn't going to be free.

Dr. Musser made the point that everything costs. Now I don't know what condition that patient is being admitted for in your hospital, but you should have a complete data base. By saying, "complete," that is your standard. I am not saying you have to have every exhaustive test in the world. You define the standard for what that data base ought to be, but whatever

the patient's condition is, presumably there ought to be a standardized, defined data base that is obtained every time.

Now the system of care that we are talking about in a problem-oriented system does not assume that the patient is going to be treated episode to episode to episode, but that you do at some point initially get a complete data base on the patient.

If it is in the physician's office, that is fine. I assume the patient you are talking about is being followed by a generalist because the physician you were just talking about is not going to take care of the whole patient. So at some point in the career of this patient, as he goes from doctor's office to doctor's office, and to the hospital and wherever, a standard data base is going to be obtained and it has to be updated.

We are collecting information now that we don't even know how to use because we don't collect it for a problem-oriented approach.

I know of at least one institution where about 20 percent of the pathology requests that are sent down on pathology laboratory specimens just never get back, and we know that the doctors, if that lab value isn't back up there, rather than have to sort through the record or wonder what happened to it, order another one. So, until we start to tie the results of laboratory records, various laboratory requests and x-ray requests to problems, so people become concerned about them from a problem point of view, from that team point of view that everybody is reluctant about, which the nurse is worried about whether or not the value came back for that particular problem, we are going to continue to have that kind of waste.

I would be quite prepared to argue, although I don't have many facts for the argument, the kind of waste that is going on in terms of tests which are not needed, days that are not required, problems that are missed and require extra days in the hospital, the kind of cost that is a wasted cost will be more than enough to pay for whatever your minimal data base may be for the patient coming into the hospital.

CHAIRMAN SHORTELL: Carl, what has been your experience with QAP in your hospital? Have you had enough experience with it yet to say anything, to say whether it is costing more?

MR. CARL BERGVIST: No, I don't think we have any definitive information.

It is obviously costing tremendous amounts of physician's time, which up to this point, at least, has been on a voluntary basis. Whether, when the program is finally implemented we can sustain that purely on a voluntary basis, is something we are trying to think on now. But I would agree, and I am speaking now to Dave's problem-oriented medical record, you might spend a little more in the initial stages gathering the data base, but you might effect a savings that Dave was mentioning. Therefore, the cost in total might be no greater than it is today with better results.

I would just like to make a comment to finish off what I think was an unfinished statement.

I was glad to hear Dr. Waldman say that medical schools are now including in their curricula, at least on a voluntary basis, some courses that offer an understanding of the administration, politics and economics of hospital operation because I think this is where a physician is going to spend a good share of his life, and it has been our experience that our house staff, when it comes to us, is basically fairly uneducated and uncertain in all three of these areas. We have had to set up some rap sessions and courses with them to try and give them a greater understanding of the real world in which they are going to spend a good share of their life.

I think if you can start back when the student is a freshman in medical school, and continue it progressively forward, we will have a better communication system.

MR. MILLER: May I add one comment? This will be brief. It is related.

In the same sense, I think it is within the last three months, I received a copy of the most recent catalog for the University's program. I noticed that they are holding medical terminology courses yet for hospital and budding hospital administrators.

You might get them involved in medical records in your next course.

If we want physicians to understand administration, we had better get the administrators to understand medical records.

QUESTION: It seems to me from what the panel and others have been saying in their presentations over the past couple of days, there might be a stage being set for a new breed of

physician administrators. I was wondering if I had misheard.

DR. WALDMAN: I think the answer to that is very definitely no. I am not a physician-administrator. I am a physician. I happen to be a physician who is interested as a health care worker, but I am not interested in administering a hospital. I would probably be a lousy administrator, and I think you will find that most physicians, the younger physicians in any case, will agree with me; I know that all of the hospital administrators will.

At the same time, I don't expect a hospital administrator to be able to practice medicine. As a matter of fact, I would join Dr. Musser in making sure he got to jail if he did.

What I do expect him to do is understand something about, perhaps, not why the physician is doing what he is doing, but at least have an understanding of what he is doing, of what is going on, so that there is communication between the medical staff and the administration and the board of trustees, a communication which, despite joint conference committees and everything else, I am sorry to say, I do not believe really exists yet.

CHAIRMAN SHORTELL: I think underlying your question, and it seems to me an issue current through the two days, is: How do you really integrate clinical and administrative decision-making? It seems to me that is what we are talking about in terms of a hospital as an organization, and these are some of the issues, I think, with which we have been trying to wrestle.

Dr. Musser, do you want to comment?

DR. MUSSER: I am always amazed that when one is dealing with a very complex problem, the vested interests come to the table of discussion with the idea that their answer is the only answer. Since most of us have learned to grow up in an adversary system, and have learned to survive in this kind of system, I think we have learned quickly that that is a bunch of stuff.

I sit almost daily in conferences where a variety of people from different backgrounds, persuasions and so on bring information and data to the policy table to determine what will be the policy in relation to complex problems, and not all the medical information, as one part of the data, is brought there by physicians.

Now I will protect the sanctity and rights of a physician until the day I die, and if my doctor brothers here think I am turning on them, they are wrong, but there is no magical thing about learning something.

I spent a great deal of time in educational research at the university I have been at. I still am. It is kind of an avocation I do at nights. But there is nothing that is so sanctified about the priestly orders of the M.D. that they are the only ones that can have medical information.

Now possessing medical information, and practicing medicine, are not the same thing, and that is not what I am talking about.

At the same time, there is no sanctity about the knowledge of an administrative process of an industrial-flow, of a decision-making matrix.

If you have an intellect, and if you are capable of taking part in the learning process, you can learn that, and you can bring that kind of data to the table.

Did you ever consider the word "equity?" And that whenever one looks at the philosophical basis of equity, everybody gives up something.

QUESTION: I am curious as to what the panel feels is the role of the consumer in the evaluation of quality. That is, Lawrence Weed proposed a National Medical Records Act which would, in effect, give the consumer the right to his record, and in so doing, it seems as though you are opening up the possibility of a number of people wanting more of this medical information as such.

I am wondering, do you see any structured role of the consumer in quality assurance, and if so, how would it be implemented as such?

CHAIRMAN SHORTELL: We touched upon that a little bit, I think, a couple of times.

Does anyone want to add anything directly to the question?

DR. WALDMAN: I would like to add one thing. I think the consumer is already involved. At least, he would be if the administrators wouldn't make hospital trustees out of them.

The boards of trustees of hospitals supposedly, to my simplistic way of thinking, represent the community. Now maybe my thinking is too simplistic. Maybe you people have been overtraining them to represent the hospital; maybe not, but I think they already are rep-

resented, that their representation perhaps may be involved in helping to set standards. Certainly it must be involved in making sure that some kind of activity to control the quality of care in hospitals is being carried out by the people who know how to do it, perhaps not being involved in doing it themselves, but oversee what is being accomplished.

MRS. LOVE: Role of the consumers should be a part of the whole system. They should have the privilege to participate, to give their ideas and opinions, because there are so many things when you find the people that have spent most of their lives in an academic setting or pursuing a particular profession, that they tend to forget.

I would take issue with the doctors saying that the consumers of the services are the boards of trustees. That is according to how you define a consumer, and in particular, when you talk about a teaching hospital and university hospitals, we all know who those patients are. We know who the patients are who participate in training these highly specialized persons. We know that they are the poor, the disadvantaged. They don't have a family doctor, and they come from communities where they have some semblance of store-front kinds of doctors who use the assembly line method, who give inadvertently each patient a whole bag of different kinds of colored aspirins or Darvons, or whatever you want to call it, to make the person feel better.

Now I would think that if you had some of these people that were used as teaching material, not necessarily on the board of trustees, to sit down with you and bring some of these things to your attention, some of these things would not happen, and I can cite the community I live in.

I live in Lawndale, and the adjoining community I work in is Garfield. You cannot tell me that many of the physicians and hospital administrators do not know they have these quacks practicing in the community because some of these same individuals are on the staffs of those very hospitals.

I am concerned about the whole idea of a peer review because I think on peer review you need to include some of these people that are victims of the system.

Now the consumer—and I am not talking

about that highly sophisticated consumer that can understand much of this terminology that is used by the professional people, and I am not saying that we are against the professions because we recognize them. We live in a technical society, and we need technical people, but there is one thing you have to remember. All members of this society are not at that level, and they are somehow excluded from the system.

In the community I live in, it is virtually impossible for any citizen or resident in the immediate area where those hospitals are to have a resident on that board. They just won't have it, and when you talk about your state or teaching hospitals and so forth, what ordinary citizen who has to work for a living can afford to run in the election to become a trustee of those boards?

Then you have an attitude. I agree that there is an attitude that we cannot be bothered with those people. Then there is another prevailing attitude that the system can't accommodate all persons who need the service. So what we have to do is use pacification.

I was never so disgusted in my life. I had the privilege of being at our conference in Boston, Massachusetts, a year ago, when Dr. Roger Egeberg, who is a consultant to the President, was talking about the forthcoming ideas that the administration had in health care, and he said that one thing that had to be guarded against was opening the floodgates to these people who haven't been receiving care. They would start desiring care.

My opinion is they need the care. It should be available to them, and I think hospitals need to go a little bit further. Once a patient is discharged, there is no record, no follow through. Perhaps he does go back to his private physician.

Why treat a person for pneumonia, and he still has to go back to an apartment where there is no heat in the wintertime, it is below zero, and nobody seems to care or do anything about it? This is why you need consumers to work with you to point these things up, if quality of care is going to be equally distributed or in some kind of way more widely distributed among all of the populations in this country.

MR. BERGKVIST: I would agree with Mrs. Love that we do need to get input from all segments of our community. Once again, in the enlightened state of Pennsylvania, we have just

had introduced a Health Care Act which has been described as the most comprehensive control act introduced, which says that the Director of the Department of Health shall have the right to insure consumer participation on boards of trustees. It then goes on to define a consumer. It defines him in negative terms in what a consumer is not. A consumer is not a paid health professional. A consumer is not a physician, and interestingly enough, a consumer, by law, if it were to be, is not a member of a board of trustees.

So once the Director of Health has appointed the so-called consumer to the board of trustees, he ceases to be a consumer by law.

CHAIRMAN SHORTELL: It seems that all of these issues we have been talking about really involve the efficacy of this whole peer review assessment process in terms of efficiency and effectiveness.

Ron, do you want to comment on any of the last couple of days?

DR. ANDERSEN: Looking at the question that we were supposed to end up addressing: Where do we go from here? It seems to me from what I have heard in the last two days, we really should be asking maybe where can we go from here because there are a number of constraints which certainly are limiting today in a way that they haven't limited us in the past. As to what possible alternatives we can follow, I think there are at least three that seem to be particularly important.

One is increasing hospital expenses, no matter how you measure it in current dollars, in constant dollars, or as a proportion of the total gross national product, and certainly there is an atmosphere today of a system which does not have the plentiful resources to continue to distribute in an increasing way as we have had in the past. I think the energy crisis gives us some feeling for what I mean.

Secondly, there has been a major shift in payment sources over the past 20 or 30 years, from the patient to other third parties, voluntary insurance, and more recently the government, and finally I think there is definitely a rebirth in the concept of consumerism. The whole idea that health is a right, regardless of the resources of the individual, is something that I think a growing portion of people in the population believe.

Consequently, when we look at measures of

the output of the system, I think we really are going to have to take into account patient satisfaction, patient assurance in ways that we haven't done up until now.

We discussed yesterday, and to some extent this morning, various measures concerning the monitoring of patients in hospitals. We talk about effectiveness or the quality of care. We said we really can't divorce this from the concept of effort or input, how much the care costs, and finally, we have said: Well, maybe we really need to take both of these into account in terms of the measure of efficiency which we might think of in terms of effectiveness over effort. What do we get for unit of input in the health care system? And in terms of these constraints we are facing, I think the partnership that has been discussed between physicians and administrators, to some extent, may be forced by these trends that are taking place.

The physician, I think, has been mainly concerned with effectiveness in the hospital. He really hasn't been overly concerned with the cost to the hospital or the overall efficiency—I am talking about the system as a whole—as long as he had the facilities that he needed to treat his patient in the way he thought was appropriate.

In the past, again in what I consider was probably a more abundant economy than we are going to enjoy in the future, many of these kudos for administrators came from getting more dollars out of an increasing pie and I am not sure this will be the case any more. Certainly there is a considerable amount of legislation that indicates that it won't happen. So he is going to have to be concerned more, with more than just effort, and the patient on the other hand, in the past, has certainly been concerned with output or effectiveness, but he has also been concerned with efficiency because he was paying a bill in large part.

That isn't true any more. So this control that has existed in the past over the physician, in the sense of being concerned with the cost to his patient, is not really the case in the hospital that it was in the past.

So even more, the physician has been able to stress effectiveness, and we have this growing third party payer now who, if we think about the past, really wasn't very important. With mechanisms we now have, obviously the government and voluntary insurance plays a more important role and will continue to play a more important role.

I would suggest that the alternatives really for the administrators today are either to begin to stress patient care monitoring in terms of efficiency, that is, looking at both cost and quality, and the physician will need to do so also, or else what we will find is that the shift will be totally in the direction of effort, that is, constraining cost. I would argue that today certainly the increasing proportion of the total gross national product devoted to medical care, and the biggest component is hospital care, is a situation which the country is not going to condone in the future. So we have to be concerned with the combination of efficiency as measured by effectiveness and effort, or I think we will be faced in the fairly near future with programs which are totally concerned with cost control.

CHAIRMAN SHORTELL: Is there any reaction? Any questions?

COMMENT: I would just like to make a couple of comments. If I can use this term, as a practicing administrator for the last 20 years, there are a few things that I don't feel we can dismiss quite as lightly as I have gathered we have in the last day and a half. One is, I think doctors should be aware that administrators of hospitals learned a long time ago that they had to answer to the plaintiff's attorney about the quality of care reflected in the record, and I don't think that a practicing administrator is very concerned about what the medical staff thinks about whether he is looking at a chart or not. He does that because he is working with the medical staff, and I should say on the other side, I don't think an informed medical staff cares very much about his looking at it either because they are working together in this "partnership."

I also think that medical staffs and boards of directors are getting closer together all the time. I think medical staffs as such, with boards of directors are very concerned about the quality of care that is being practiced in the hospitals. Perhaps we are getting to a more sophisticated method to promise problem-oriented systems, etc.

I think hospitals with their organized medical staffs and other observations are very concerned about good quality medical care for consumers. I agree with Mrs. Love that I am not

so sure effective consumerism should be represented on boards of trustees. I think they would be much more effective elsewhere in the total matrix with hospitals and medical staffs, but I also feel that we have to be cognizant of the practical side of this. When we are talking about medical care, and when we are talking about getting this done, there is absolutely no question, in my mind, that this is going to cost increasingly more for the consumer.

I think this was alluded to yesterday, that you get quality care where we do all kinds of things in the university setting at \$200, and in the community hospital at \$100 a day, and I honestly feel there is some truth in that. But, we have to remember with the example that we used this morning, when you have a patient with a broken leg and you are treating the whole patient because you are looking for carcinoma in his rectum, that when you do this in the ideal situation in the surgical suite, and a third party insurance gets the bill for proctoscopy done in surgery, he denies the payment reimbursement for this because, after all, we are only paying for the setting of this leg and the care for the broken limb; or we find that the constraints by government with Medicare and Medicaid are not being fully reimbursed to hospitals facing the cost because they are not interested in the fact that the patient stayed three more days because we were doing these other diagnostic exams, treating the whole patient. I think we have to make sure that the consumers and doctors and everyone else in this matrix understands, that the present administration represented in our governments—if I can paraphrase Dr. Musser's story—have already missed three of the last four questions, because they are more concerned about costs than they are quality, and they don't want to be confused with the facts.

CHAIRMAN SHORTELL: Does any one want to comment on that?

COMMENT: I also am concerned. If this system were allowed to be implemented without a total reconsideration of the entire system of medical care, the costs would inevitably rise, so that it is to be hoped that a system of the sort that we have been discussing in the last two days will not only be looking at means of assuring quality of care, but, at the same time, would be looking at whether the things we do are efficient and effective things.

For example, the physical examination as routinely practiced. Does it offer satisfactory returns for the amount of effort expended? For example, does the problem-oriented medical record and the cost of its implementation give us the kinds of returns that one would hope we would get, which would be not only returns that guarantee quality care, but are, at the same time, efficient in terms of cost effectiveness?

I think that to pursue any of these trends without a careful analysis of the whole system would surely lead us down the path of bankruptcy, but I would hope that the new thinking in health delivery and in quality assurance might allow for reconsideration in a system that really has never been looked at in that way.

DR. WALDMAN: I would like to get in one final comment. When I was asked to sit on this panel, Steve left me a charge of reacting to previous speakers and trying to organize and integrate the issues, and what I have seen in the last day and a half I think are two issues that at times have become confused and intermingled with each other. I would like to separate them.

I think one issue is what care, what process, what are the things that we can do that would guarantee the best outcome.

That issue is one that Dr. Peterson addressed by saying that there are certain types of organizations.

Dr. Williamson thinks that there is information to be gathered by looking at processing, by looking at outcome, and Dr. Brook, of course, went on to talk about controlled clinical trials. Of course, the government is interested in making sure it is done in the cheapest way. I think this is an important issue in something that ought to be looked at, but this is research.

I don't mean to denigrate research. I am simply saying that this is to be and should be considered as research, as the development of new knowledge, but I think there is a second issue that has been touched on which I find a much more pressing one.

What about the 35 million hospitalizations that are taking place this year? Are we going to wait to revise the whole health care system to prove without a doubt that the things that we are doing, that we know we are doing now, really lead to the best outcome?

I don't think we can wait. I don't think the patients currently being treated can wait.

There are methodologies that have been

developed. Clem Brown talked about one. The JCAH has one. The QAP is a methodology.

I don't know whether these methodologies will cost more. I don't know whether they will cost less, but I do know that they are something that can be done now. So what I say is that the second issue, and the one I consider more burning, being a pragmatic surgeon, is: Let's get on with doing what we know how to do right now. Let's get on with making sure that the patients are receiving that which we, at least, think is the best we can do for them right now in our community hospitals, and also let's get on in parallel with the research that is necessary that will then feed into that quality control system, and tell us: No, the standard should really be thus, but let's not sit and say we can't do anything because we are not sure.

CHAIRMAN SHORTELL: Well put.

Let me thank our speakers today, Mr. Miller and Dr. Musser, who has left, and all the panel participants and those here from yesterday.

When I began thinking about this particular conference, and with Joel putting together the

symposium itself, I began thinking of all of the complex problems in this area of trying to assess the quality of medical care, and there is a great deal of confusion.

The gentleman over here made a comment that he was not sure that we aren't more confused now than we were on Friday morning. At any rate, I hope it is a higher level of confusion. I hope we realize some of the subtle complexities of the problem.

I think we have learned something about some methodologies that can approach these problems, and I think if there is an issue that has come out of all of this, at least in my own mind, it is the need for evaluation of what we are doing in an ongoing manner.

So I want to thank all of you for participating. I might add that although this year's symposium has ended, we begin thinking of next year's symposium tomorrow morning. So, if any of you have any ideas in terms of next year's symposium, we would be glad to take them right now.

Thank you all very much.

***Selected Annotated Bibliography on the
Quality of Medical Care
1967-1972***

Prepared by
SANDRA FIGLER, M.P.H.

I.

STANDARDS AND CRITERIA FOR EVALUATING
THE QUALITY OF MEDICAL CARE

A. *Hospital Organization, Medical Practice Structure and the Quality of Care*

1. Goss, Mary E., "Organizational Goals and the Quality of Medical Care," *Journal of Health and Social Behavior* 11:255-268, December, 1970.

This review attempts to demonstrate ways in which the organizational structure and procedural norms of hospitals indirectly impact upon the quality of care rendered. The author believes that what is needed are studies comparing outcome or process variables with structural characteristics indicating definitive goals and their relationship to quality. The extent of teaching, medical school affiliation, research, the absence of profit motives, and special services are considered indirect measurements of quality according to the degree of the existence of these variables in a given hospital. The author concluded that with the exception of inadequate special services classifications, these measures could serve as representative samples of goals related to quality. In fact, the author appears to be attempting to measure commitment to quality as a goal by developing standards for assessing organizational goals.

2. Ingelfinger, F. J. (ed.), "Measuring the Quality of Health Care," *New England Journal of Medicine* 285:918-919, October 14, 1971.

Broad criteria for the measurement of health care are lacking. A traditional measure, the infant mortality rate, involves only one segment of care, as does a second measure, the volume of disability. Since disability is both a condition, itself, and a subjective interpretation, its meaning is varied and often unclear.

3. Jason, Hilliard, "Relevance of Medical Education to Medical Practice," *Journal of the American Medical Association* 212:2092-2095, June 22, 1970.

This author distinguished between composite and component skills in medical practice. Composite skills become amalgamated into component skills with clinical practice. Pre-clinical students need help with beginning to unify these skills before they can be ready for clinical patients. Most important, today's requirements for effective practice have not yet been defined and incorporated into the educational system.

Placing third year medical students in clinical rounds makes no logical sense as long as the relevance of education to practice cannot be evaluated by current standards. The author recommends bringing community physicians in larger numbers into medical education so that they may aid in the development of relevant standards and help reunite education and practice.

4. Price, P. B. et al., "Attributes of a Good

Practicing Physician," *Journal of Medical Education* 46:229-237, March, 1971.

The author questions traditional assumptions equating high academic performance with performances as interns, residents, or practicing physicians. A list of 116 qualities of the physician providing patient care were ranked according to their necessity for superior medical performance. Physician performance was rated on a one to five point scale, with the ranking of items weighted for each group of items. This appears to be a fairly comprehensive attempt to define the final target of medical education, the superior physician, based on combined rating of essential qualities by physicians and patients.

5. Roemer, Milton and Jay Friedman, "Medical Staff Organization in Hospitals: A New Typology"

Part I: *Hospital Management* 105:58-61, April, 1968.

The authors indirectly assess standards for the quality of care by emphasizing and describing the influence that staff organizational patterns have on all aspects of hospital performance. A continuum of organizational patterns is presented, ranging from very loose to moderate to very highly structured.

Part II: *Hospital Management* 105:41-44, May, 1968.

The authors continue their description of organizational patterns by more explicitly identifying five prototypes of medical staff organizations. The very loosely structured staff has open membership with G.P.'s as the major utilizers of staff privileges. The loosely structured staff organization limits membership according to available beds, though both G.P.'s and specialists have privileges. The highly structured staff evolves from efforts to restrict staff size, and itself has rigorous appointment procedures.

Part III: *Hospital Management* 105:56-59, June, 1968.

The authors see commitment as the key indicator of staff structure and performance. The degree of commitment is measured by the number of other hospital affiliations, the method of remuneration, and the extent of physician control. The assumptions involved are that the existence of salaried physicians, fewer other affiliations, and physician controls can be equated with firmer organizational structure and greater ability to control performance. Adjusting for hospital size, the authors attempt to crudely measure commitment in one hospital by these attributes.

6. Somers, Anne, "University Hospital: Future Role," *Hospitals* 45:41-53, November 16, 1971.

Mrs. Somers defines one of the primary roles of the hospital as professional monitor of the quality and quantity of medical care. A network of health care organizations will develop with close ties to the first-rate hospital which will have resources for comprehensive care. Within this network the hospital performs R&D studies in

health care delivery, rather than replaces primary health care components.

Mrs. Somers foresees that the characteristics which make the university hospital unique (superior technology, greater resources, more teaching, etc.) will also skyrocket the costs and strain the quality of patient care. The university hospitals' position will erode unless it can win back public confidence and reduce costs.

7. Yadeau, Robert, "Principles of Hospital Staff Reorganization for a Successful Medical Audit," *Hospital Progress* 52:72-73, March, 1971.

The author believes that the traditional medical staff approach to assessing quality emphasizes training, rather than competency. Each staff committee should have specific responsibilities for review; while the audit committee should review every case. Audit committee reports should be open and should be distributed so that physician patterns of care are shown. The audit committee should also develop ideal criteria upon which each M.D. can be evaluated and should suggest needed educational programs.

B. *Standards and Criteria for Evaluating the Process of Medical Care*

8. Falk, I. S., H. Schonfeld, B. R. Harris, S. J. Landau, and S. S. Milles, "Development of Standards for the Audit and Planning of Medical Care; I. Concepts, Research Design, and the Content of Primary Physician Care," *American Journal of Public Health* 57:118-136, July, 1967. Annotated on p. 35 in I. Altman, A. J. Anderson, and K. Barker, *Methodology in Evaluating the Quality of Medical Care*, No. 73, (University of Pittsburgh Press, 1969).
9. Ima, Kenji, Daisy Tagliacozzo, and Joyee Lasher, "Physician Orientation and Behavior: A Study of Outpatient Clinic Physicians," *Medical Care* 8:189-199, May-June, 1970.

The authors attempt to compare physician judgment on the characteristics of problem patients in clinic and in private practice. An 80 percent return rate was received on questionnaires mailed to 143 physicians at Presbyterian-St. Luke's Hospital, Chicago. Results indicated that physicians who perceived a greater number of problem patients in practice were more likely to use patient failures as grounds for dismissing patients than physicians who perceived otherwise. Physicians satisfied with the overall control of their practice and treatment were less likely to dismiss problem clinic patients than physicians whose practice was mainly private. Least satisfied physicians tend to apply private practice models to clinic patients, and, implied herein, show less patients and concern and give less care.

10. Johnson, Walter and Leonard Rosenfeld, "Indices of Performance in Ambulatory Care," *Medical Care* 7:250-260, May-June, 1969.

The authors have combined time, staff, and patient load data to formulate composite indices

of performance in ambulatory care. Variations between lengths of clinic and institutional sessions were judged significant; while waiting time for sessions was judged a built-in attribute, despite type of session. Despite guidelines concerning time required for old and new patients, little difference was noted in the relationship between type of visit and session length. Wide variations in the adequacy of care as measured by clinic activity and performance were noted across the sample institutions, though limited in sample size.

11. Kelman, Howard and Jack Elinson, "Strategy and Tactics of Evaluating a Large-Scale Medical Care Program," *Medical Care* 7:79-85, March-April, 1969.

The authors describe a two-prong evaluation unit to be set up at a New York hospital to assess community health levels and needs and the adequacy of hospital care. Clinical appraisals will be unique in their attempts to rate actual patient outcomes with expected outcomes and identify reasons for discrepancies. Medical audits will include nursing and social work departments. Those assigned to audit teams will also have clinical responsibilities for patients, as well as review records prior to discharge. The goal is to link ultimate changes in health status with patient care, both pre- and post-hospital.

12. ———, M. A. Cameron, C. Herr, and W. Perry, "Monitoring Patient Care," *Medical Care* 7:1-13, January-February, 1969.

The authors attempt to identify issues and problems in monitoring the impact of and changes in care upon patients in community hospitals. They identify three common problems in interviewing providers to assess care: (1) inadequate understanding of the assessor of care, (2) lack of common reference points between assessor and provider, and (3) provider difficulties in identifying patients as individuals.

13. Kisch, Arnold and Leo Reeder, "Client Evaluation of Physician Performance," *Journal of Health and Social Behavior* 10:51-58, March, 1969.

Patterns of utilization were examined for a sample of welfare recipients in Los Angeles County. Clients identified physicians as either having given or not having given the medical care sought according to their own subjective impressions. Interestingly enough, physicians identified as having given clients the care they sought differed from those physicians not so identified in length of training, limitations on practice, and in limitations on the number of patients seen per day. Thirty-five percent of those physicians identified as not having given the care sought were also not board eligible physicians.

14. Last, John and Kerr White, "Content of Medical Care in Primary Practice," *Medical Care* 7:41-48, January-February, 1969.

The authors present an index of major diagnostic conditions. The patient defying classification is recognized as the usual problem for this type of procedure.

15. Sanazaro, Paul and John Williamson, "Physician Performance and Its Effect on Patients," *Medical Care* 8:299-308, July-August, 1970.

The authors present a classification of patient care episodes based on "critical" physician actions and on patient end results directly observed or verified. This modified form of the critical incident technique was derived from over 1,900 reports from internists, surgeons, pediatricians, and obstetricians. Each physician provided six written reports of specific acts with specific effects based on his own or a colleague's performance; three positive and three negative reports.

The authors recognize that these reports have limited potential for generalization because of the recording of only unusual performance, rather than representative samples. The strength of this study rests on its basis in episodes of care for which the causal relationship between physician action and patient effects is generally accepted. This study does not resolve the problem of distinguishing between results not uniquely dependent on medical care and process outcomes, as well as the problem of the retrospective nature of critical incident evaluation.

16. Schonfeld, Hyman, "Standards for the Audit and Planning of Medical Care: A Method for Preparing Audit Standards for Mixtures of Patients," *Medical Care* 8:287-298, July-August, 1970.

The author suggests a methodology for classifying groups of patient care records for auditing. The four broad case mixes suggested are: (1) all new cases of a disease, (2) new cases in which the person should recognize a symptom, (3) new cases in which the symptom is recognized, and (4) new cases where medical attention is sought. Patients with the same disease are then grouped according to the number and type of physicians seen previously for the same condition.

Clinical standards for each service of each specialty sub-group are necessary for group audits, in addition to weighted standards for each index, if case mixes are being used and standards for grouping differ.

17. ———, *et al.*, "The Development of Standards for the Audit and Planning of Medical Care: Good Pediatric Care—Program Content and Method of Estimating Needed Personnel," *American Journal of Public Health* 58:2097-2110, November, 1968. Annotated on p. 70 in I. Altman, A. J. Anderson, and K. Barker, *Methodology in Evaluating the Quality of Medical Care*, No. 143, (University of Pittsburgh Press, 1969).
18. ———, *et al.*, "The Development of Standards for the Audit and Planning of Medical Care; Pathways Among Primary Physicians and Specialists

for Diagnosis and Treatment," *Medical Care* 6:101-114, March-April, 1968. Annotated on p.71 in I. Altman, A. J. Anderson, and K. Barker, *Methodology in Evaluating the Quality of Medical Care*, No. 144, (University of Pittsburgh Press, 1969).

19. ———, *et al.*, "The Content of Good Dental Care: Methodology in a Formulation for Clinical Standards and Audits and Preliminary Findings," *American Journal of Public Health* 57:1137-1146, July, 1967. Annotated on p. 71 in I. Altman, A. J. Anderson, and K. Barker, *Methodology in Evaluating the Quality of Medical Care*, No. 145, (University of Pittsburgh Press, 1969).
20. Slee, Virgil, "How to Know If You Have Quality Control," *Hospital Progress* 53:38-42, January, 1972.

The author identifies the following essential components of quality control: the existence of standards, a surveillance process, and corrective action. He suggests a general typology of standards to include hospital wide, departmental, and diagnostic criteria reflecting patterns of care for groups of patients. The process of developing these standards should take place before the review of care. Naturally, Mr. Slee emphasizes the strength of the PAS survey in the surveillance process and the audit as the heart of quality control. Corrective action should include education, record updating, and when necessary, medical staff intervention.

21. Zelenik, Carter, "Patient Care Evaluation: 10 Basic Principles," *Hospital Medical Staff* 2:2-9, January, 1973.

Selectivity is necessary in determining aspects of patient care to be evaluated. If topical areas are to be selected, priorities for selection should include recognition of importance, amenability to intervention, a level of agreement about outcome, and recognized frequency and severity. Where agreement about outcome is not feasible for several years, the process of care could be viewed as an end in itself. Information should be distinguished from data and statistical techniques must account for reliability, validity, and sample size. Utilizing these principles in practice could help unite expectations from evaluation with methodology and results.

C. Standards and Criteria for Evaluating the Outcome of Medical Care

22. Kerr, Markay and Don Trantow, "Defining, Measuring, and Assessing the Quality of Health Services," *Public Health Reports* 85:415-424, May, 1969.

The impact of health services ought to be focused on the health status of the individual as an end target. Once it is decided that a service system is capable of providing all health services then the quality of care received ought to be measured by the extent to which this goal is achieved. The assumption being tested is the relationship between the resources available, the

population potential for utilizing these resources given its disease history, and the capacity of the system to respond and impact on health. One very questionable assumption in this article is that the difference in provider performance within regions will balance out.

23. Sanazaro, Paul and John Williamson, "End Results of Patient Care," *Medical Care* 6:123-130, March-April, 1968. Annotated on p. 158 in I. Altman, A. J. Anderson, and K. Barker, *Methodology in Evaluating the Quality of Medical Care*, No. 307, (University of Pittsburgh Press, 1969).
24. Shapiro, Sam, "End-Result Measurements of Quality of Medical Care," *Milbank Memorial Fund Quarterly* 45(2):7-30, April, 1967. Annotated on p. 159 in I. Altman, A. J. Anderson, and K. Barker, *Methodology in Evaluating the Quality of Medical Care*, No. 310, (University of Pittsburgh Press, 1969).
25. Williamson, John, "Evaluating Quality of Patient Care: A Strategy Relating Outcome and Process Assessment," *Journal of the American Medical Association* 218:564-569, October 25, 1971.

Dr. Williamson attempts to focus on factors with the greatest probability for influencing significant changes in health status in the given target population. The elements of this strategy are diagnostic outcomes as related to diagnostic processes and therapeutic outcomes as related to therapeutic processes. The percentage of false negatives and false positives in the population requiring care serve as a first diagnostic outcome measure; while a follow-up study of patients' functional conditions serve as a first therapeutic outcome measure.

Setting confidence intervals of 95 percent, the author presents eight illustrations comparing measured findings with criteria to determine the need for process studies. This strategy focuses on prognosis, overall patient impairment, and continuing education for problem solving. It also appears to be well related to actual practice needs and quality measures and utilizes both subjective and objective measurement criteria.

II.

ASSESSMENT AND MEASUREMENT OF THE QUALITY OF CARE

A. General Theoretical Framework

26. Degeyndt, Willy, "Five Approaches for Assessing the Quality of Care," *Hospital Administration* 15:21-42, Winter, 1970.

This author's typology for assessing the quality of care includes assessment of content, process, structure, outcome, and impact. Examples of major studies in each category are reviewed. Some of the problems arising with this schema are inherent in the manner in which quality is defined. For instance, in content studies, such as audits,

records, etc., quality is measured by the degree of conformity to present standards. Process measures, likewise, lack a means to express interrelationships between segments of the process. Also, structural elements cannot always be significantly related to measurement of quality. Deficiencies in utilizing outcome measures alone include the utilization of proxy indicators of health, defining questionable causal relationships, and temporally limited measures of functioning. The author emphasizes an impact approach geared to the total target population and utilizing cognitive as well as affective measurement tools.

27. Donabedian, Avedis, "Patient Care Evaluation," *Hospitals* 44:131-136, April 1, 1970.

The author reviews significant facets of the 1969 literature on patient care evaluation. Four issues in evaluation are identified: (1) perspective, (2) level and scope, (3) relationship of the process of care to structure, and (4) techniques for monitoring care. In addition to these issues, a need exists for a developmental method to review the quality of entire episodes of care.

28. ———, "Promoting Quality Through Evaluating the Process of Patient Care," *Medical Care* 6:181-202, May-June, 1968. Annotated on p. 172 in I. Altman, A. J. Anderson, and K. Barker, *Methodology in Evaluating the Quality of Medical Care*, No. 332, (University of Pittsburgh Press, 1969).
29. Kisch, A. I., J. W. Kovner, L. J. Harris, and G. Kline, "A New Proxy Measure for Health Status," *Health Services Research* 4:223-230, Fall, 1969.

The authors seek a measurement of health status whose scoring will correlate with physician assessment based on the patient history and physical exam. Criteria for this new measure must emphasize accuracy, brevity, numerical simplicity, and objectivity. Patients are asked four major questions simultaneous with a physician's rating of a given patient's health as good, medium, or poor. The authors admit that this proxy measure overestimates the number of persons in good health in the sample and also does not impact on the relationship between health and inpatient hospital utilization. The proxy measure does, however, attempt to interrelate process and outcome variables.

30. Reynolds, Robert and Thomas Bice, "Attitudes of Medical Interns Toward Patients and Health Professionals," *Journal of Health and Social Behavior* 12:307-311, December 1971.

The authors test the hypothesis that young staff physicians and interns favor health professionals as a group more than they do other patients. A semantic differential questionnaire was used to survey interns and residents of a large municipal hospital on evaluative activity and potency factors. Results indicated prefer-

ence for health professionals rather than other patients; preference for the acutely ill patient over the chronically ill; and finally, preference for the chronically ill over crocks, patients from whom students feel they can learn nothing. Potential implications for favoring certain patient types on the quality of care rendered are only acknowledged, not developed.

31. Ryder, Claire *et al.*, "Patient Assessment: An Essential Tool in Placement and Planning of Care." *Public Health Reports* 86:923-932, October, 1971.

The authors believe that the ultimate purpose of patient assessment is triage. They divide the assessment process into three stages: input, throughput, and output and describe the components of each stage. Though triage serves to identify care needs and the adequacy of available care, triage can also serve as an aid in program evaluation of goals and services.

B. Process Studies

32. Collect, LeVerne and Charles Dohner, "Change in Attitude as an Index of Effectiveness for Short Courses in Continuing Medical Education," *Journal of Medical Education* 45:237-242, April, 1970.

This study is an attempt to assess the effectiveness of short courses in continuing education offered by the University of Washington Medical School through the use of a motivational scale. The authors assume that measuring motivation is a valid predictor of the influence of such courses on professional development based on a teaching objective of stimulating new ideas. Using sets of bi-polar adjectives, they attempt to relate needs of participants to the value of the content and lecturer's objectives. The difference between means for content and objective items are considered a valid assessment of participants' perception of which lectures were successful. The reader should note that this is a highly subjective evaluation based on perceived relevance and that the relationship of continuing education courses to improved quality of care rendered is only implied, not tested.

33. Denton, John, Amasa Ford, Ralph Liske, and Robert Ort, "Predicting Judged Quality of Patient Care in General Hospitals," *Health Services Research* 2:26-33, Spring, 1967. Annotated on p. 85 in I. Altman, A. J. Anderson, and K. Barker, *Methodology in Evaluating the Quality of Medical Care*, No. 174, (University of Pittsburgh Press, 1969).
34. Connella, J. S., M. J. Goran, J. W. Williamson, and N. J. Cotsonas, "Evaluation of Patient Care: An Approach," *Journal of the American Medical Association* 214:2040-2043, December 14, 1970.

This study is an attempt to develop an approach to measure educational effectiveness in terms of the quality of care rendered patients. A sample of clinic patients were studied for pyelonephritis symptoms and were then examined by clinic

teams. Clinic records of these patients were analyzed to compare the process followed by clinic teams with the preliminary studies. Objective exams were then given to team members to compare their knowledge of urinary tract infections with their actual performance in the care of these patients.

They found a higher than expected incidence of bacilluria indicating the lack of data on the medical status of the target population. Performance on the objective exam was not predictive of actual patient care performance, though areas needing continuing education were noted. This approach has value in providing incidence data in a specific population as well as in pointing out educational needs, though actual performance was not successfully predicted.

35. Haussmann, R. J. Dieter, "Waiting Time as an Index of the Quality of Nursing Care," *Health Services Research* 5:92-105, Summer, 1970.

The author has defined the nursing unit as a queuing system with an arrival process, a service process, and a mechanism for service delivery. The arrival process is further defined as a queue of service demand from the patient. The hypothesis being tested is the inverse relationship between waiting time for service and the priority of patient demand.

Using a queuing model on a burn unit, testing revealed results indicating that with increased nursing loads, numbers of patients considered of lesser priority would rapidly increase, and these lesser priority patients would get less nursing care. The waiting time for patient demands, therefore, is judged directly proportional to the condition of the patient. The indications for the quality of nursing care are that major staff changes or increased patient loads will affect the quantity and quality of emotional and physical support that the nurse can give to patients.

36. Helbig, Donald, Donna O'Hare, and Neil Smith, "The Care Component Score—A New System for Evaluating Quality of Inpatient Care," *American Journal of Public Health* 62:540-546, April, 1972.

The Bureau for Handicapped Children of the New York City Health Department reviews the patient care provided in 87 New York City hospitals by specialists' case summary reviews and by periodic re-evaluation visits. The Bureau sought a rating system to evaluate overall hospital performance and to detect weaknesses in component segments. A scale of levels of quality was prepared by experts for 14 components of in-hospital care, including items such as appropriateness of tests, diagnosis, use of consultation, follow-up, overall quality, etc. The scoring system was tested by one expert's review of 700 cases for components that possibly did not apply under this system. Pediatric cases for one month were reviewed across hospitals. Surgery was too often judged inappropriate even at high ranking hospitals.

Physician opinions about a given hospital were

factored out and cases were re-rated yielding high consistency and rater agreement. The authors caution that this scoring method requires a review load of 1,000 or more cases per month for efficient utilization. Though primarily based on process variables, this scoring system has high potential for improving quality review mechanisms for government agencies and other third parties.

37. Helfer, Ray, "Estimating the Quality of Patient Care in a Pediatric Emergency Room," *Journal of Medical Education* 42:244-248, March, 1967. Annotated on p. 40 in I. Altman, A. J. Anderson, and K. Barker, *Methodology in Evaluating the Quality of Medical Care*, No. 84, (University of Pittsburgh Press, 1969).

38. Hershberg, Philip, "Medical Diagnosis: The Role of a Brief, Open-Ended Medical History Questionnaire," *Journal of Medical Education* 44:293-297, April, 1969.

This study is an evaluation of the diagnostic potential inherent in free patient description of his (her) condition by a brief questionnaire completed before the physician session. The diagnosis formulated on the basis of the questionnaire was compared with the functional clinic diagnosis for omissions. Completed agreement between clinic and questionnaire diagnosis existed in 31 cases. The remaining results indicated omission of 20 minor clinic diagnoses; omission of two noteworthy and one significant diagnoses, eight questionnaire diagnoses possibly inappropriate when correlated, and three definitely inappropriate diagnoses. Criteria for judgment rested on the potential effects of omitted items.

39. Meikle, Stewart and Richard Gerritse, "A Comparison of Psychiatric Symptoms Frequency under Narrative and Check List Conditions," *American Journal of Psychiatry* 127:379-382, September, 1970.

This study attempts to determine whether the use of symptom check list rather than a narrative history produces a change in the number of descriptive terms used by patients in a 70 bed psychiatric hospital. Two check lists developed from literature searches are completed by trained medical students at different intervals on each patient. A limited correlation between any two items on the list indicated indifferent predictions between how raters check each symptom. Results showing a mean increase of 16 descriptive terms by the check list indicate potential for more relevant diagnosis and treatment with this method.

40. Richardson, Fred MacD., "Peer Review of Medical Care," *Medical Care* 10:29-39, January-February, 1972.

The author initially reviews the results of the Rochester Regional Perinatal Study. In a review of 1,200 cases a final judgment disagreement of 33 percent necessitated a second study to explore the extent of and reasons for such disagreement. Changes in scoring, intra-discipline review, and

categorization from chart information were instituted between the time of the two studies. Samples of surgical, pediatric, and obstetrical cases were sent to all reviewers and were re-reviewed.

Substantial disagreement was still found on the same sample of 30 cases sent to all obstetricians; on the same sample of 10 cases sent to surgeons, and on the same 30 cases sent to pediatricians. The study results indicated the following: (1) consistent patterns of leniency and strictness existed among raters; (2) raters depended on different aspects to make final judgments; and (3) an inadequate number of independent judges were available to rate under these conditions compared to the number needed. The authors concluded that indirect and unmodified retrospective audits are inadequate review mechanisms, unless pretests of standards for compliance can be instituted.

41. Strolley, Paul *et al.*, "Physician Characteristics and Prescribing Appropriateness," *Medical Care* 10:17-28, January-February, 1972.

The authors consider the appropriateness and adequacy of prescribing to be an essential component of the quality of medical practice. In 1970, the authors interviewed 37 primary care practitioners and followed-up with questionnaires to ascertain prescribing behavior for five common complaints and five common illnesses. Practitioners' views of the use and contra-indications for five generally held undesirable drugs were also obtained. The major dependent variable of the study was, therefore, prescribing appropriateness, as rated by a panel of 33 experts and then re-rated by a second panel for a final combined expert rating.

Results indicated that the more appropriate prescribers tended to be younger, more recent graduates, with more postgraduate courses and training, though fewer years' experience. This same group also tended to have larger practices with less time available per patient. The good prescribing group tends to seek data on contra-indications and is dissatisfied with sources of information available. The better prescribing group, however, was judged to be more modern, more concerned with the psycho-social factors in illness and with the quality of care, and was more likely to be a critic of the drug industry. The authors emphasize the consistency between these results and other major studies.

42. Tufo, Henry and Joseph Speidel, "Problems with Medical Records," *Medical Care* 9:509-517, November-December, 1971.

This study describes the finding from an analysis of outpatient records in five army outpatient facilities in different geographic areas. The five variables studied are record availability, completeness of patient care data, laboratory reduplication data, laboratory report data, and

physician report data. The facets of record analysis studied included the number of tests ordered which duplicated results of missing tests, completeness of recorded follow-up of test results, problem and treatment well-defined, course of problem recorded, etc.

Results indicated a wide variation in numbers of patients seen without prior data available across facilities. Seventy-five percent of this missing information was the result of lost or incomplete lab tests or x-rays and 25 percent the result of lost or incomplete data from previous visits. The authors emphasize failure to precisely define and standardize necessary information as a prime causal factor. One implication for usefulness of the audit is insufficiently detailed information to assess quality of care rendered. The authors believe that the problem-oriented record has potential for relating aspects of care to other problems noted and, therefore, for resolving this data problem.

C. Outcome Studies

43. Brook, Robert *et al.*, "Effectiveness of Inpatient Follow-Up Care," *New England Journal of Medicine* **285**:1509-1514, December 30, 1971.

The purpose of this study is to develop patterns of care for patients discharged from public hospitals and to develop indices for evaluating the effectiveness of care. Four hundred and three patients discharged over a two month period during 1969-1970, from the medical clinics of Baltimore City Hospital, constituted the sample population for study. Charts were reviewed and patients interviewed six months after discharge.

Medical care provided and outcome were the major variables under study. Criteria for the provision of adequate care included having kept half of all appointments, if referred to a clinic; still taking drugs prescribed; and having a source of care for a chronic condition. Outcome criteria evaluated included symptoms of illness, major activity limitations, and ambulatory functioning.

Sixty-six percent of persons interviewed were given clinic appointments, only six percent had no follow-up at all. Of all procedures completed on patients interviewed, 66 percent were considered adequate according to these basic criteria outlined. Results also indicated that patients often used other sources of care, though physicians in the community rarely sought or received discharge summaries for these same patients. Forty-six percent of the patients interviewed revealed decreased functional capacity. The author concluded that the large discrepancy existing in outcome could not be explained alone by process variables, indicating negative implications for the quality of follow-up care received in this patient population.

44. ——— and Robert Stevenson, "Effectiveness of Patient Care in an Emergency Room," *New England Journal of Medicine* **283**:904-907, October 22, 1970.

This study as based on chart reviews and follow-up interviews in a cohort of 141 emergency

room patients treated at Baltimore City Hospital in 1969. These patients with non-emergency gastrointestinal symptoms were also scheduled for upper GI series, barium enemas, or cholecystography. These conditions were selected for study because of these patients' need for continuing care. Of the 131 patients interviewed, 60 had had prior consultations (within three months) for the same condition. Only 94 patients had complete diagnostic x-rays according to 141 records. Only 77 had adequate work-ups for diagnosis and 17 were judged as having had unsatisfactory enemas.

Concerning therapeutic processes and outcomes, 30 percent of patients interviewed sought help from other sources. Only 38 percent of those patients having had complete x-rays knew the results. Combining the results of diagnostic and therapeutic outcomes for the cohort, only 38 patients received care judged effective; 19 patients showed no change at all. This study concludes that inadequate quality of care was received by $\frac{3}{4}$ of the original cohort.

45. Fessel, W. J. and E. E. Vanbrunt, "Assessing Quality of Care from the Medical Record," *New England Journal of Medicine* **286**:134-139, January 20, 1972.

This study examines the relationship between recorded process measures and outcome. The process of appendicitis was reviewed for 50 charts during 1967-1968; then another 50 charts were reviewed at three different hospitals each. Reliability and validity were checked with a medical record librarian and improvement in outcome was the prime criterion measured.

Another 50 charts of myocardial infarction were reviewed with 44 items noted as absent or present. Outpatient records for the same 50 patients were also reviewed for outcome. Two other groups of 50 patients' charts were reviewed according to minimum criteria for good care determined by three cardiologists; one group of uncomplicated MI cases, and one group of patients who had died from MI.

For the appendicitis cases outcome was essentially the same though different symptoms and signs were recorded. For the first MI group no significant relation was shown between audit scores and outcome. For the other groups of MI cases no relationship was shown between audit scores and those who survived or died. The authors conclude that flaws exist in traditional methods of auditing when outcome shows no relationship to the medical record and when only the record is what is being audited.

46. Fink, D., F. Martin, M. Cohen, M. A. Greycloud, and M. J. Malloy, "The Management Specialist in Effective Pediatric Ambulatory Care," *American Journal of Public Health* **59**:527-533, March, 1969.

This study was based on the assumption that the average patient encounters difficulty in medical care performance, resulting in a loss of medical care effectiveness. Medical effectiveness

could be improved by the assignment of management responsibility for each case and by investigating each family's needs before planning care. Three study groups and one control group were set up in a pediatric acute care clinic for URI complaints. Two of the four groups were seen by the family health management specialist, a nurse, and a plan predictive of effectiveness was made prior to diagnostic and treatment formulations. Indicators of the families' levels of understanding included whether appointments were carried out and evaluations of medications and specialist procedures. Though improvement in care performance was concluded, difficulties inherent in this new expanded role for the nurse were also described.

47. Fisher, Andrew, "Patient Evaluation of Outpatient Medical Care," *Journal of Medical Education* 46:238-244, March, 1971.

This study, undertaken at the University of Oklahoma Outpatient Clinics, attempted to identify factors influencing outpatient care. A random sample of 150 patients was given two interviews based on the question of whether care received at the clinics was judged better than, equal to, or less than care received from local physicians who had referred them. The patients whose responses indicated some questioning of physician integrity rated short waiting times and seeing the same physician as important factors in judging quality. Those patients who showed an overall positive attitude toward the physicians felt that they had had enough time, that the physician had shown them high interest, and that their conditions had improved (physicians were highly skilled).

48. Green, Charles, "Evaluation of a Family Care Program for Released Mental Patients," *Health Services Research* 3:35-47, Spring, 1968. Annotated on p. 142 in I. Altman, A. J. Anderson, and K. Barker, *Methodology in Evaluating the Quality of Medical Care*, No. 278, (University of Pittsburgh Press, 1969).
49. Grier, George and Jason McClellan, "Effectiveness of a Large Community Coronary Care Unit," *Southern Medical Journal* 61:429-433, April, 1968. Annotated on p. 143 in I. Altman, A. J. Anderson, and K. Barker, *Methodology in Evaluating the Quality of Medical Care*, No. 279, (University of Pittsburgh Press, 1969).
50. Hagner, Samuel, Victor LoCicero, and William Steiger, "Patient Outcome in a Comprehensive Medicine Clinic," *Medical Care* 6:144-156, March-April, 1968. Annotated on p. 144 in I. Altman, A. J. Anderson, and K. Barker, *Methodology in Evaluating the Quality of Medical Care*, No. 280, (University of Pittsburgh Press, 1969).
51. Lewis, Charles and Ruth Haussanein, "Continuing Medical Education—Epidemiological Evaluation," *New England Journal of Medicine* 282:254-259, January 29, 1970.

This study was an attempt to demonstrate whether an association could be shown between continuing education and the end results of medical care. University of Kansas investigators studied the association between participation in courses from 1956-1965, and perinatal death rate and the incidence of certain surgical operations. Of the physicians surveyed the average attendance in circuit continuing education courses was less than one working day per year, and no association could be shown.

In 1967, only 41 of 1,098 physicians contacted agreed to a similar study with the only result indicating more complete physicals given by those attending more classes. The authors conclude that unless continuing education is geared to known needs and deficiencies, no improvement in the quality of care rendered is likely.

52. Payne, Beverly, "Continued Evolution of a System of Medical Care Appraisal," *Journal of the American Medical Association* 201:536-540, August 14, 1967. Annotated on p. 153 in I. Altman, A. J. Anderson, and K. Barker, *Methodology in Evaluating the Quality of Medical Care*, No. 297, (University of Pittsburgh Press, 1969).
53. Roemer, Milton, A. Taher Moustafa, and Carl Hopkins, "Proposed Hospital Quality Index: Hospital Death Rates Adjusted for Case Severity," *Health Services Research* 3:96-118, Summer, 1968. Annotated on pp. 155-156 in I. Altman, A. J. Anderson, and K. Barker, *Methodology in Evaluating the Quality of Medical Care*, No. 303, (University of Pittsburgh Press, 1969).
54. Stone, Joseph, Elizabeth Patterson, and Leon Felson, "The Effectiveness of Home Care for General Hospital Patients," *Journal of the American Medical Association* 205:145-148, July 15, 1968. Annotated on p. 179 in I. Altman, A. J. Anderson, and K. Barker, *Methodology in Evaluating the Quality of Medical Care*, No. 345, (University of Pittsburgh Press, 1969).
55. Thompson, John, Don Marquis, Robert Woodward, and Richard Yeomans, "End-Result Measurements of the Quality of Obstetrical Care in Two U.S. Air Force Hospitals," *Medical Care* 6:131-143, March-April, 1968. Annotated on p. 164 in I. Altman, A. J. Anderson, and K. Barker, *Methodology in Evaluating the Quality of Medical Care*, No. 319, (University of Pittsburgh Press, 1969).

III.

TOOLS AND TECHNIQUES OF ASSESSING QUALITY

A. Medical Audit—Method and Description

56. Bianco, Emidio, "Medical Audit: Powerful Tool

for Upgrading Care," *Hospital Progress* 51:72-74, July, 1970.

This author believes that the hospital is the only place where medical competency can be evaluated. He stresses the need for national norms for auditing as well as evaluating nursing and administrative policies.

57. Donabedian, Avedis, "Some Issues in Evaluating the Quality of Nursing Care," *American Journal of Public Health* 59:1833-1836, October, 1969.

The author points out that the nursing audit is an evaluation of process and that the quality of records does not necessarily equate with the quality of care. Criteria and standards for measurement are necessary; scales that are both valid and reliable. The question of implementation of results of audits was also raised.

58. Eisele, C. Wesley, "Medical Audit: Key to Assuring High Quality Medical Care," *Trustee* 23:1-5, July, 1970.

The medical audit is an obligation that hospitals must fulfill and that hospital boards should regularly demand. The audit meets criteria of continuing education by being ongoing, community-hospital based, and relevant to day-to-day practice. Medical staffs should agree on audit standards and measures and should conduct audits at the department or clinical service level. In addition to regular surveys of the patient population, the audit committee should also complete a total review.

59. Richardson, Fred MacD., "Methodological Development of a System of Medical Audit," *Medical Care* 10:451-463, November-December, 1972.

The author presents a model of an objective, systematic audit based on preset criteria. This model was developed as a result of the second Rochester Perinatal Study undertaken by the New York Bureau of Medical Review. Four hundred cases of biliary tract surgery, 274 cases of perinatal diarrhea, and 281 cases of pregnancy complications were reviewed to develop criteria for information which should be in a medical chart. The presence-absence and quality of the items were rated on a scale from one to five, including items such as histories, exams, lab tests, and therapeutic data.

The major fault of this model is the inclusion of non-criterion clinic situations in the ratings. The results of this model are a set of case scores presenting quality on a scale from good to bad. Though preset criteria were established, the factoring out of highly subjective and non-criterion measures does not yet appear to be achieved by this model.

60. Sanazaro, Paul *et al.*, "Research and Development in Quality Assurance: The Experimental Medical Care Review Organization Program," *New England Journal of Medicine* 287:1125-1132, November 30, 1972.

This article generally describes the evolution

and development of models to test the NCHSRD peer review concept in projects acceptable to the public, the government, and to third party payers. The standards described for the 10 projects funded as EMCRO's include at least 250 participating physicians; predetermined priorities for types of data needed and analyzed; and explicit criteria for diagnosis and treatment. The criteria proposed by specialist-G.P. panels involved tend to emphasize process variables, though some projects have defined modes of therapy and specific indications for each treatment.

Sources for data are either insurance claim forms or chart abstracts. For insurance forms the adequacy of diagnosis or appropriateness of procedures cannot be checked. One project engages in prospective evaluation; however, none of the projects have yet dealt with the issue of how well procedures are being carried out.

61. ——— and Bernard Slosberg, "Patient Care Evaluation: Annual Administrative Review," *Hospitals* 45:131-136, April 1, 1971.

The authors review the 1970 literature on patient care evaluation, particularly the Bennet Amendment to the Social Security Act of 1970, advocating a network of peer review organizations. Articles by Gonnella, Goss, DeGeyndt, and Williamson are also reviewed.

62. Wandelt, Mabel and Marcia Phaneuf, "Three Instruments for Measuring the Quality of Nursing Care," *Hospital Topics* 50:20-23, August, 1972.

This article describes in detail the Slater Nursing Competencies Rating Scale, the Quality Patient Care Scale, and the Nursing Audit all developed at Wayne State University, College of Nursing. The Slater Nursing Competencies Scale rates competencies displayed; while the Quality Patient Care Scale measures quality of nursing care received while care is ongoing.

The criteria of care for the 84 items of the Slater Scale is the rater observed care versus the care expected of a first level staff nurse with a five point range from best to poorest. The six sub-areas rated include individual and group psycho-social care, physical care, general and continuing care, and professional implications. The Quality Scale has 68 items adapted from the Slater to describe nursing acts as received with the same criteria being utilized.

The Nursing Audit includes 50 items to measure the one dependent and six independent functions of the nurse according to state license statutes. Each item is defined to identify total essential components. The authors caution on the need for information on a specific facet of a program before an evaluation can be component specific. These tests measure quality provided by nursing staffs to groups of patients.

63. Wilson, David, "Medical Audit and Utilization Review," *World Hospital* 5:138-142, July, 1969.

Quality has been defined as the degree of conformity with standards and accepted principles. The quality of audits can be improved by the

establishment of several audit committees. For example, where an organized medical staff exists, the audit function can be performed at regular monthly staff meetings. The author points out Hawley's three errors to overcome in developing the audit; resistance of professionals, human error, and accurate measurement. What is needed is a medical record information system with medical staff trained in audit techniques.

B. Medical Record

64. Barter, E., J. Rinaldo, and T. Garrigan, "An Evaluation of Reporting Systems," *Hospitals* 45:72-76, December 16, 1971.

Two different recording systems are compared; one, an M.D. dictating system in which a report is typed from a recording into the medical records department. In the second system, a data card system, the patient marks boxes and the physician marks the physical exam results in other boxes. Results indicated improved quality of patient history and physical information recording with the data card system. Physicians were somewhat leary of continuing with the system, though nurses and patients indicated acceptance.

65. Dinsdale, Sidney *et al.*, "The Problem-Oriented Medical Record in Rehabilitation," *Archives of Physical Medicine and Rehabilitation* 51:488-492, August, 1970.

This article describes the use of Weed's problem-oriented record system at the University of Minnesota Hospitals and at the Kenny Rehabilitation Institute. With this switch in emphasis to problem definition, nursing notes, as well as psychology and social work notes, become part of unified progress notes. With this system residents in physical medicine and rehabilitation can be evaluated on the basis of readily available and definitive criteria. An example case is documented.

66. Gertzog, Jack, "Changing Concept of Medical Records," *Public Health Reports* 85:673-679, August, 1970.

Fragmentation of medical records increases with increasing medical specialization. Specialists are not treating the total health picture of the individual. In addition, as population mobility grows, the medical record becomes the record of the last medical event rather than of the continuity of care. An individual's interaction with the many agencies, institutions, etc., is recorded in many places other than the medical record. Finally, today's concept of disease has changed to an emphasis on chronic conditions, often of drawn out durations.

A basic reorientation of the purpose and scope of the medical record is necessary to meet these changes. The author feels that Weed's concept of the problem-oriented record and Acheson's concept of record linkage complement each other; Weed's concept can provide the problem-oriented structure for linkage systems needed for this basic revision of the record system.

67. Graves, Stewart, "Better Records: First Step to Better Quality," *Modern Hospital* 116:105-108, April, 1971.

The author points out some of the pros and cons of the manual versus the computerized medical record, particularly the problem-oriented record. He believes that the computerized problem-oriented record will interact indentially with the same patient repeatedly; whereas, the manual record system may not. Since the two systems have different problem lists, they cannot easily be compared for quality.

68. Greenes, R. A., G. Barnett, and S. W. Klein, "Recording, Retrieval, and Review of Medical Data by Physician-Computer Interaction," *New England Journal of Medicine* 282:307-315, November 6, 1970.

This article describes the development of an on-line record system in a Hypertension Clinic. This system includes the opportunity for structured physician input; summary of medical data and storage, and a sequential branching process of medical problems related to hypertension.

69. Grossman, Jerome *et al.*, "Evaluation of Computer-Acquired Patient Histories," *Journal of the American Medical Association* 215:1286-1291, February 22, 1971.

The author describes an attempt to judge computer expansion based on measurement of utility, patient satisfaction and health care, and personnel satisfaction. The quality of data was evaluated versus the completeness and agreement with physician recorded histories. Also, the psychological effects on patients of the new system together with health professionals' ideas about effect of this Automated Medical History on delivery of care were added to the evaluation of the system.

Composite histories from charts were compared with items in the AMH with matching of false positives and false negatives. Though the AMH definitely recorded more items of data, results indicated some patient ambivalence concerning possible reinterview by the AMH. Physicians also showed some differences in attitude concerning the use of the AMH. The study did reveal that physicians tend to draw conclusions early in case workups and then record only what they judge to be important. The AMH, on the other hand, had not been organized to support physician judgment. The author concludes that more items of data alone do not improve the quality of care, though a more complete record and less variability in recording may indeed improve quality.

70. Housley, Nicholas, "A System for the Management of Hospital Records," *Hospital Management* 108:36-41, September, 1969.

A medical record system was reorganized for a dual purpose; to determine record completion

status, and to determine the length of time of individual physician record backlogs. This new system is based on a step-by-step process of employee responsibility for definite sections of the record to achieve complete records of good quality. Charts are scanned using a check-off form to determine which records are incomplete.

71. Krismer, John and Jerome Cordes, "Problem-Oriented Record Begins with the Patient," *Modern Hospital* 115:81-83, November, 1970.

A pilot record study undertaken at St. Lawrence Hospital, Lansing, Michigan, is described. The authors point out that before computerization is developed categories for the problem-oriented record must be set up. These categories include; problem list, physician orders, physician update, nurse observations, progress notes, flow charts, medical history, and physical exam.

72. Phillips, Donald, "The Problem-Oriented System," *Hospitals* 46:84-88, July 16, 1972.

This author reviews and presents possible revisions of Weed's concept of the problem-oriented medical record. Weed's record is based on four phases of action; data base collection, problem formulation, problem-oriented planning and numbering, and progress notes and followup. J. W. Hurst of Emory University suggests adding two steps to Weed's problem delineation: manipulating raw data into etiological, physiological, and functional diagnoses, and the demonstration of the temporal sequence of the patient's illness.

The problems of appropriate scaling and management levels for adaptation of this concept to the computer are raised. The author stresses that physicians do not recognize that Weed also uses the medical teaching process in his audit concept. The skills needed for his system are also cognitive, attitudinal, and manipulative skills used in medical education.

73. Weed, L. L., "Medical Records that Guide and Teach," *New England Journal of Medicine* 278:593-600, March 21, 1968.

This article develops Weed's concept of the problem-oriented medical record and its application to medical auditing. This record system establishes problem areas against which performance can be judged. It also provides an ongoing data bank from which new standards and results can be evaluated. Computerization of data will improve assessment of quality control.

C. Indirect Methods for Assessing Quality

(1) Medical Education and Quality of Care

74. Enelow, Allen, Leta Adler, and Murray Wexler, "Programmed Instruction in Interviewing: An Experiment in Medical Education," *Journal of the American Medical Association* 212:1843-1846, June 15, 1970.

Non-verbal techniques in interviewing are necessary tools for professional competence. Medical educators defined the optimal patient inter-

view as one in which the greatest amount of accurate information relevant to diagnosis and management was obtained within realistic time limits. Ten programmed interviews were developed and presented to students and at nodal points questions were asked on typical problems in eliciting information from patients. Results indicated that these interviews were more effective with audiences relatively unfamiliar with that type of interviewing forming the instructional content.

75. Engel, George, "Care and Feeding of the Medical Student," *Journal of the American Medical Association* 215:1135-1141, February 15, 1971.

The author describes deficiencies in medical school education affecting professional competence. The basic organization and philosophy of medical education is oriented toward an understanding of disease, not an understanding of the problems of the patient. The system fails to consider the patient's experience of illness and does little to help students understand patients as people. Additional training in clinical observation is needed before students can be ready for clerkships with real patients.

76. Hess, J. W. and M. Levitt, "New Philosophies in Medical Education: Their Effect on Recognition of Competence," *Journal of the American Medical Association* 213:1009-1012, August 10, 1970.

This article emphasizes the importance of the behavioral sciences in influencing criteria for identifying professional competence. The minimum level of competence for entering general practice must be defined. Once this level is agreed upon, the techniques for the measurement of competence must be determined.

77. Peterson, Osler and Henrik Bendixen, "A Critique of Graduate Medical Education in Community Hospitals," *Journal of Medical Education* 44:762-767, September, 1969.

The authors feel that interns should not be assigned to community hospitals with rotating staffs, since with this system the responsibility for quality of care is widely diffused. Community hospitals capable of becoming teaching hospitals should focus on completing this change and centralizing responsibility for quality of care.

(2) Hospital Utilization and the Quality of Care

78. Anderson, O. W., "What Utilization Review Will and Won't Do," *Modern Hospital* 116:97-100, January, 1971.

The evolution of utilization review committees indicates a lack of systematic methodology for their usage. The author reviews the Michigan and Massachusetts studies on professional decision making and hospital utilization. Utilization review presently does not come even close to suggesting any hospital reorganization. Emphasis should be placed on developing options between competing delivery methods to improve the quality of care.

79. Jacobs, A. R., J. W. Gavett, and R. Wersinger, "Emergency Department Utilization in an Urban Community," *Journal of the American Medical Association* **216**:307-312, April 12, 1971.

The authors studied emergency room services across Rochester, New York. A random sample of all emergency room cases in 1968 was evaluated from emergency room logs and records. Only 35 percent of the cases evaluated were judged to be true emergencies by the nurse-physician rater team. The study results also indicated an inverse relationship existed between the socioeconomic areas of patient origin and the rate of emergency room visits. Patients from the more economically depressed areas had higher return rates. The authors suggest that trade-offs in quality, costs, and manpower exist when the emergency room service becomes the primary care physician for the poor.

80. Nahum, Alan, "Emergency Medical Care System," *Journal of the American Medical Association* **217**:1530-1532, September 13, 1971.

The author stresses the inequality of treatment as a result of a lack of equality among emergency care facilities. The two major variables affecting the emergency care system are the quality of medical care and the time framework. The total population affected can be measured by sampling records and information about cases which finally do not enter the system. Output results can also be categorized into complete recovery, recovery with partial disability, recovery with complete disability, and death. Such measurement attempts will help identify the variables within system components.

81. Norris, John, "The Acute Hospital—Chronic Hospital Affiliation," *Medical Care* **9**:479-486, November-December, 1971.

The author attempts to determine the advantages of affiliation between the acute short-term hospital and the long-term chronically ill hospital by studying the admission, discharge, and transfer patterns between the two types. Baltimore City Hospitals' Chronic Hospital accepts admissions from within the Baltimore City system and from outside hospitals. Patients from BCH acute units are accepted for transfer to the chronic unit after screening lasting from two to three days. Patients from outside hospitals, however, are accepted upon bed availability and receive screening lasting one week. They are then first admitted to the acute BCH units for evaluation, and then finally, transferred to the chronic unit.

Results also indicated that physicians begin discharge planning at a later stage for patients from non-associated hospitals and that a total reduction of 24 days per patient is achieved by the association with the Chronic Hospital.

82. Perkoff, Gerald and Mary Anderson, "Relationship Between Demographic Characteristics, Patient's Chief Complaint, and Medical Care Destination in an Emergency Room," *Medical Care* **8**:309-323, July-August, 1970.

The authors studied patients treated at the two Barnes Hospital, St. Louis, emergency rooms in 1968-1969, to determine possible associations between patient's chief complaints, demographic characteristics, case urgency estimates, and the site of the medical care delivery after the emergency room visit. Over two different study periods 6,500 records were sampled and 114 diagnostic categories coded.

Results indicated that the residences of ward patients clustered around the hospital while private patients resided throughout the metropolitan area. Also, ward patients were less likely to get admitted to the hospital and were admitted in smaller proportions than their number represented in emergency room figures. In spite of similar insurance coverage, black patients were also more likely to be admitted to the wards than private rooms. The authors assign part of the reason for this admission pattern to the preference for patients to have private physicians when being admitted to private rooms and the lesser likelihood of black patients having private physicians.

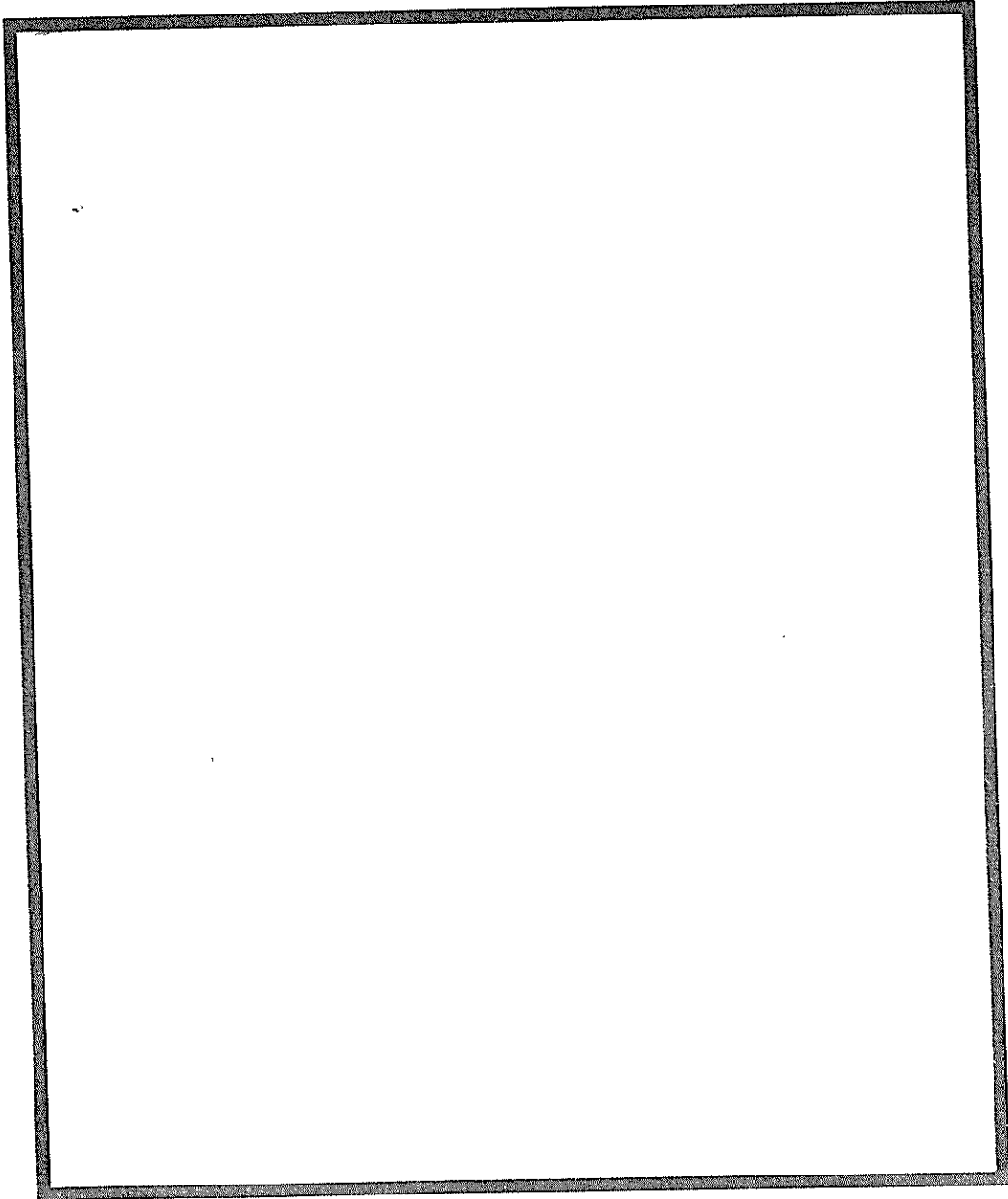
83. Yeomans, Richard and Richard Brose, "A Basis for Classifying Hospital Emergency Services," *Journal of the American Medical Association* **213**:1647-1651, September 7, 1970.

The authors suggest a system for sorting patient needs for emergency care together with resource needs. Twenty-eight hospitals in metropolitan Kansas City were surveyed and their emergency rooms inspected for equipment, area, and personnel. The factors in determining the quality of care rendered were: (1) quality of most crucial personnel available and consultation available, (2) organization of the emergency room in terms of policies, physician direction, triage, discharge planning, and (3) facilities and equipment. Numerical values were assigned to these aspects of delivery and composite scores totaled. The results indicated that the seven highest ranking hospitals already handled one-half of all the emergency room visits. The authors conclude by suggesting a threefold classification for emergency rooms: (1) the major emergency room, highly qualified to handle all cases, (2) the emergency facility, qualified to provide initial care, and (3) the emergency room, qualified to provide mainly first aid.

THE GRADUATE PROGRAM IN HOSPITAL ADMINISTRATION

The Graduate Program in Hospital Administration was established at the University of Chicago in 1934, making it the oldest such educational venture. The purpose of this two year program is to prepare students for administrative assignments in hospitals and elsewhere in the health field.

The curriculum in the first year concentrates on courses in the basic administrative skills—quantitative and behavioral—as well as others designed to impart the knowledge required for decision-making in such areas of administrative endeavor as personnel, finance, production, and marketing. In the second year, the curriculum places emphasis on an understanding of economic, financial, organizational, and administrative problems and relationships in hospitals and the health field, and the application of basic administrative skills to the resolution and management of such problems.



CENTER FOR HEALTH ADMINISTRATION STUDIES

The University of Chicago
5720 S. Woodlawn Ave.
Chicago, Illinois 60637