

Assessment of Quality of Care by Profiles of Physicians' Morbidity Data

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A process model for the assessment of quality of care in the ambulatory setting by diagnostic profiles of participating physicians is presented. This model allows comparison of the individual physician's morbidity profile with those of his peers in family practice and other primary care disciplines. Deviations from peer group profiles set the stage for education focused on accepted criteria for diagnosis and management of specific clinical problems. Initial experience indicates that physicians will participate in the project and can benefit from the experience. It is anticipated that further experience with the method described will demonstrate that it is a valid technique to evaluate quality of care and that changes in physician behavior can be demonstrated following educational experiences based on deviant morbidity profiles.

In recent years, there has been increasing interest in peer review and the assessment of quality of care in the United States. In 1972, the United States Congress enacted Public Law 92-603 which mandated the creation of physician groups called Professional Standard Review Organizations (PSRO). The function of these organizations is to provide peer review concerning the suitability and quality of care rendered to patients insured under Medicare, Medicaid, and Title V of the Social Security Amendments. Although the law relates primarily to hospitalized patients, it is likely that ambulatory care will come under scrutiny in the near future.

Donabedian¹ has described three parameters by which quality of care may be assessed:

1. Structure — which includes a measurement of health facilities available;
2. Process — which includes manage-

ment of health and illness; and
3. Outcome — which includes what eventually happens to the patient.

Although evaluations of outcome are the most desirable, they are the most difficult to perform. Outcome measurements often require extended periods of observation. In addition, there is a lack of precise information about the natural history of diseases. This makes it difficult to relate

medical interventions to health outcomes.

There have been a number of attempts to assess quality of care by process management. Assessment by chart review in offices of internists led Kroeger and coworkers to conclude that only 67 percent of physicians kept records which were adequate for review purposes based on legibility and completeness.² Other measurements of the medical record^{3,4} show similar problems of incomplete data recording. Some groups have defined specific criteria for the diagnosis and management of a group of health conditions^{3,5} and suggest that quality assessment may be made by comparison of actual performance with these selected criteria. The use of pre-selected specific criteria may be a poor method because the selected criteria tend to become unduly rigid.

This paper presents an attempt to assess quality of care in the ambulatory setting. *Process* is measured rather than outcome, although the potential

Table 1. Age-Sex Analysis of Patient Population

Age in Years	All Family Doctors		Dr. S.	
	No.	% of Total	No.	% of Total
Males				
0-4	2,957	4.9	19	0.4
5-9	3,533	5.9	63	1.3
10-14	3,341	5.6	139	3.0
15-24	5,244	8.8	617	13.4
25-34	3,810	6.4	338	7.3
35-44	2,777	4.6	188	4.1
45-54	2,356	3.9	354	7.7
55-64	1,790	3.0	306	6.7
65+	1,629	2.7	192	4.2
Total	27,437	46.2	2,216	48.1
Females				
0-4	2,824	4.7	17	0.4
5-9	3,311	5.6	49	1.1
10-14	2,981	5.0	152	3.3
15-24	6,789	11.4	650	14.1
25-34	5,445	9.2	314	6.8
35-44	3,433	5.8	223	4.8
45-54	2,928	4.9	441	9.6
55-64	1,986	3.3	299	6.5
65+	2,285	3.8	243	5.3
Total	31,982	53.8	2,388	51.9
Total	59,419		4,604	

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for outcome measurement is created. This study was undertaken with acceptance of the following assumptions:

1. Process measurements can produce evidence of quality of care.
2. The diagnoses that a physician makes are an important parameter of process measurement.
3. Individual physicians' performance in diagnoses should be compared to that of peer groups rather than against idealized standards.
4. Participation should be voluntary.
5. Feedback to participating physicians should have no adverse consequences, such as loss of income or prestige. Reviews of insurance claims often carry such penalties.

The project had the following goals:

1. To define local standards of medical care within three groups of primary care physicians, (a) family physicians, (b) internists, and (c) pediatricians, by analysis of morbidity data.
2. To identify deviations from the standards among participating physicians by comparison of their morbidity profiles with those of their peer groups.
3. To educate physicians about currently accepted diagnostic criteria and therapy for those conditions identified in which they were deviant from their peer groups.
4. To document changes in physician behavior by continuous monitoring of morbidity data and comparison with data generated prior to the educational experience.

This is a preliminary report which describes the method and some of the early results. All of the goals described above have not yet been implemented.

Method

Enrollment of participating physicians began in January 1972. Currently there are 56 family physicians and general practitioners (including family medicine residents) in 11 practices recording data on 60,000 patients. In addition, there are ten internists in seven practices with 25,000 patients and five pediatricians in two practices with 15,000 patients. The diagnostic and demographic data are recorded both manually and on computer tape allowing retrieval of diagnostic data by either method. Each participating practice has the following systems installed:

1. *Age/Sex Register* – The Age/Sex Register has been described elsewhere,⁶ but briefly it is a file of 3 x 5 cards which are color-coded for sex and contain the following information: name, age, date of birth, area of residence by census tract, marital status, and physician. Cards are filed by color and by date of birth. Active patients are defined as those patients who have had a physician encounter within the preceding two years.

2. *A Classification of Diseases* – An ideal classification of health problems for use in primary care has not been available and the hospital classifications currently in use have not been found suitable for recording health problems in the ambulatory setting.⁷ In 1972, the best available classification appeared to be the Metcalfe modification of the Royal College of General Practitioners Classification of Diseases. This classification was adopted and used in all practices. In November 1974, the International Classification of Health Problems for Primary Care (ICHPPC) was approved by the World Organization of National Colleges and Academies of Family Medicine-General Practice. This classification had been tested for one year in multiple sites in nine countries and will be introduced into our participating practices at a later date.

3. *The Diagnostic Index – E-Book* – The Diagnostic Index – E-Book was devised by Eimerl and also has been described elsewhere.^{8,9} This index is a manual method for recording morbidity data by diagnostic groupings.

Table 2. Comparative Morbidity Report for Common Problems by Category

Category 1. Communicable Diseases

RCGP No.	Description	Frequency of Diagnoses Number	Cases/1,000
Family Physicians (Practice population 63,933)			
025	Warts, viral	674	10.5
005	Intestinal infectious	447	6.9
021	Dermatophytosis	286	4.4
017	Infectious mononucleosis	165	2.6
027	Other virus infection	163	2.5
Doctor N.L. Practice No. 7 Family Physician (Practice population 3,275)			
021	Dermatophytosis	38	11.6
025	Warts, viral	36	11.0
023	Epidemic winter vomiting	12	3.7
006	Scarlet fever	11	3.4
017	Infectious mononucleosis	11	3.4
Total Population (Practice population 89,353)			
005	Intestinal infectious	1,250	14.0
025	Warts, viral	1,023	11.5
027	Other virus infection	632	7.1
021	Dermatophytosis	371	4.2
031	Pyrexia without rash	353	4.0
Pediatricians (Practice population 13,380)			
005	Intestinal infectious	747	55.8
027	Other virus infection	457	34.2
025	Warts, viral	343	25.6
015	Mumps	202	15.1
031	Pyrexia without rash	201	15.0
Internists (Practice population 12,040)			
005	Intestinal infectious	56	4.7
016	Infectious hepatitis	39	3.2
014	Herpes zoster	33	2.7
017	Infectious mononucleosis	19	1.6
027	Other virus infection	12	1.0

