

Relationship of Physician Continuity to Type of Health Problems in Primary Care

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The objective of this study was to determine if the level of continuity of medical care was related to the type of health problems (chronic or acute) presented by patients at four family health centers during a one-year period. Patients with chronic diagnoses encountered significantly fewer physicians and had a higher mean Continuity Index than patients with acute illness diagnoses, even though these two groups made the same number of health center visits for their respective problems during this period. These findings indicate that the prioritizing of clinical problems (whether planned or fortuitous) with respect to the importance of providing continuous care may already be taking place at these health centers. These activities are appropriate if one accepts the premise that, other things being equal, longer illnesses are treated more effectively if there is a consistent knowledge base about a patient and his/her illness, and that this consistency of knowledge is related to the number of providers encountered by that patient.

There has been considerable discussion regarding the value of continuity of medical care, and this concept has long been considered one of the basic tenets of family medicine.¹⁻⁴ Given the importance generally placed upon achieving single-physician continuity for patients, and the added obstacles inherent in settings which are involved in the training of residents, it may be wise to prioritize clinical situations according to their need

for continuous care by one provider. Further, a high level of physician continuity is more critical to a patient's well-being in some instances than in other instances (eg, chronic illness visits vs acute illness), and perhaps providers should aim to provide a greater degree of continuity in these priority situations. In a preliminary study reported by Hansen,⁵ family practice residents were asked to estimate the importance of continuity for ten different kinds of visits: delivery, follow-up of a chronic condition, decision to hospitalize a patient, home visit, acute illness which is a diagnostic problem, health maintenance visit, follow-up for acute illness, telephone call-acute symptom, injury requiring suturing, and acute illness with obvious diagnosis. Using a five-point scale ranging from "not at all impor-

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tant" to "very important," the residents rated "follow-up of a chronic condition" the second highest ranking type of encounter, in terms of importance for physician continuity to exist (delivery ranked number one), and "acute illness with obvious diagnosis" and "injury requiring suturing" ranked lowest and next to lowest, respectively, out of the ten types of encounters.

An objective of this study was to determine whether the level of physician continuity was related to the type of health problems presented by patients in four family health centers during a one-year period. More specifically, did patients who made visits for acute illnesses encounter a greater or lesser number of physicians, on average, than patients making visits for chronic illnesses?

Methods

Data for this study were obtained from the computerized encounter form information system of four residency based family health centers affiliated with the University of Massachusetts Medical Center. Diagnoses recorded for patients seen in the health centers by faculty and resident physicians between July 1978 and June 1979 were used as the basis for data analyses. Previous evaluation of the data's reliability has shown that there is no significant difference between the rate at which diagnoses were written in the medical records but not recorded in the computer (18 percent), and the rate at which diagnoses were recorded in the computer but not in the medical records (16 percent).⁶ These error rates are consistent with those reported in the literature.^{7,8} Further examination revealed no significant difference in the degree to which codeable* acute illnesses and chronic illnesses were recorded in the computer (ie, these two types of health problems were recorded into the computer with the same degree of reliability).

The authors identified patients who presented with any of 14 specific diagnoses during the study year. Six of these diagnoses pertained to chronic

disease: essential hypertension, obesity, diabetes mellitus, depression, anxiety with somatic complaints, anxiety without somatic complaints. These are diagnoses for which a high level of physician continuity might be considered more crucial to a patient's well-being than for the remaining eight acute illness diagnoses: upper respiratory tract infection, urinary tract infection, vaginitis, rash, otitis media, boil/cellulitis, low back pain, and burns/scalds.

An illness "episode" for one of the above diagnoses was defined as a set of two or more visits by a patient, for which the particular diagnosis was recorded on each visit. Only those visits for which the diagnosis was recorded were considered part of the episode, and other visits made by that patient, which did not have that particular diagnosis recorded, were ignored. It should be noted that a particular patient could have been diagnosed for more than one illness episode. If this were the case, the patient would have his/her data from each episode included in the appropriate diagnostic group.

The average number of patient visits, average number of physicians encountered by patients, and the ratio of these two measures, the "Continuity Index,"** were calculated for episodes of each of the 14 diagnoses. A series of t tests were performed to determine if there were any significant differences in these three measures, comparing the group of six chronic illness diagnoses with the group of eight acute illness diagnoses.

Results

For the six diagnoses identified as chronic illness, a total of 1,464 episodes occurred during the study year, each episode comprising two or more visits to the health center. A total of 1,111

*A codeable diagnosis was one which was recorded in either the medical record, the computer, or both sources.

**The Continuity Index (Godkin MA, Rice CA: Assessing continuity of physician interactions with patients and families in a primary care setting, unpublished) is a measure of the extent of interaction between a patient and a physician, and is calculated by dividing the average number of visits made by a patient or a group, by the average number of providers encountered. The higher the value of the Continuity Index, the greater the number of visits spent with each encountered provider, and, hence, the higher the provider continuity.

Table 1. Mean Number of Visits Made, Physicians Encountered, and "Continuity Index" for Patients with Selected Chronic Illness and Acute Illness Diagnoses

	Number of Patients*	Mean Number of Visits Made	Mean Number of Physicians Seen	Mean "Continuity Index"
Chronic Illness				
Anxiety with somatic complaint	108	2.67	1.12	2.045
Anxiety without somatic complaint	21	2.74	1.17	2.096
Depression	108	3.18	1.12	2.331
Diabetes mellitus	234	3.40	1.18	2.415
Hypertension	802	2.91	1.13	2.304
Obesity	191	3.14	1.13	2.252
All "episodes"	1,464	2.69	1.10	2.117
Acute Illness				
Acute otitis media	409	2.64	1.37	1.761
Acute upper respiratory tract infection	321	2.28	1.60	1.393
Boil, cellulitis	90	3.03	1.35	1.848
Burns, scalds	22	4.50	1.73	2.155
Cystitis, urinary tract infection	60	2.53	1.40	1.692
Low back pain	116	2.69	1.29	1.848
Rash, skin eruption	34	2.31	1.29	1.610
Vaginitis	59	2.39	1.46	1.534
All "episodes"	1,111	2.80	1.44	1.730
t value:**		0.66	-4.54	4.729
Significance:		Not significant	P<.01	P<.01

*Patients who made two or more visits in which this diagnosis was recorded

**Compares chronic illness group and acute illness group, with respect to mean number of visits made, physicians seen, and Continuity Index

episodes of the eight acute illnesses was recorded during this study period, each episode consisting of at least two visits.

Table 1 shows the mean number of visits made, physicians encountered, and Continuity Index for patients with each of the chronic and acute diagnoses, for the combined episodes of the six chronic diagnoses, and for the combined episodes of the eight acute illnesses. A t test showed no significant difference between the mean number of visits made during the year for a chronic diagnosis or an acute illness (2.7 and 2.8 visits, respectively, $t = 0.66$). Despite this similarity in the number of visits made, however, there was a significant difference in the average number of physicians encountered by patients in these two groups: pa-

tients in the chronic illness group encountered significantly fewer physicians, on the average, than did patients with acute health problems (1.10 and 1.44 physicians encountered, respectively; $t = -4.54$, $P < .01$). Consequently, the mean Continuity Index, because it is a function of the number of visits made and physicians encountered, is significantly higher for chronic diagnoses, compared with acute illnesses (2.12 and 1.73, respectively; $t = 4.73$, $P < .01$).

Comment

This study addresses the issue of whether patients who made visits for chronic illnesses re-

ceived more or less continuous care by providers than patients with acute medical problems. Patients with chronic illnesses encountered fewer physicians, on the average, and had a higher mean Continuity Index than patients with acute illness diagnoses, even though these two groups made essentially the same number of health center visits for their respective problems during the study period. It appears, then, that in addition to the frequency with which visits are made, and the presence or absence of a resident training program in a particular health center, a third contributing factor to a patient's level of continuous physician care may indeed be his or her type of health problem. Further, the results in this study indicate that the prioritizing of clinical needs (whether planned or fortuitous) with respect to the importance of providing continuous care may already be taking place at the four health centers. These activities can be considered appropriate if one accepts the premise that, other things being equal, longer illnesses are treated more effectively if there is a

consistent knowledge base about a patient and his/her illness and that the consistency of knowledge is, in turn, related to the number of providers encountered by a patient.

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