behavior of urban mothers. J Health Human Behav 6: 141-147, fall 1965.
15. Moen, B. D., and Poetsch, W. E.: More preventive care, less tooth repair. J Am Dent Assoc 81: 25-36, July 1970.
16. Kriesberg, L. and Treiman, B. R.: Socio-economic status and the utilization of dentists' services. J Am Coll Dent 27: 147-165, September 1960.
17. Kriesberg, L. and Treiman, B. R.: Preventive utilization of dentists' services among teenagers. J Am Coll Dent 29: 28-45, March 1962.
18. Grossman, M.: The demand for health: A theoretical and empirical investigation. National Bureau of Economic Research, New York, 1972.
19. Phelps, C. E.: Effects of insurance on demand for medical care. *In* Equity in health services, edited by R. Andersen, J. Kravits, and O. W. Andersen. Ballinger, Cambridge, MA, 1975, pp. 105-130.
20. Hadden, W. C.: Basic data of health care needs of adults ages 25-74 years, United States, 1971-75. DHHS Publication No. (PHS) 81-1668. Hyattsville, MD. December 1980.
21. Knoke, D.: A comparison of log-linear and regression models for systems of dichotomous variables. Sociological Methods and Research 3: 416-434, May 1975.
22. Evashwick, C., Conrad, D., and Lee, F.: Factors related to utilization of dental services by the elderly. Am J Public Health 72: 1129-1135, October 1982.
23. Andersen, R. M., Kravits, J., and Anderson, O. W.: Equity in health services. Ballinger, Cambridge, MA, 1975.
24. Nikias, M. K.: Prevention in oral health problems: Social behavioral aspects. Prev Med 5: 149-164, March 1976.
25. Williams, A. F., and Wechsler, H.: Interrelationship of preventive actions in health and other areas. Health Serv Rep 87: 969-976, December 1972.
26. Manning, W. G., and Phelps, C. E.: The demand for dental care. Bell Journal of Economics 10: 503-525 (1979).
27. Cohen, L. K., O'Shea, R. M., and Putnam, W. J.: Toothbrushing: Public opinion and dental research. Journal of Oral Therapeutics and Pharmacology 4: 229-246 (1968).
28. Leske, G. S., Ripa, L. W., and Leske, M. C.: Dental public health. *In* Maxcy-Rosenau public health and preventive medicine, Ed. 11, edited by J. M. Last, Appleton-Century-Crofts, New York 1980, pp. 1423-1468.
29. Rothman, K. J.: Diseases of the mouth. *In* Prevention and community medicine, Ed. 2, edited by D. W. Clark and B. MacMahon, Little, Brown and Co., Boston, 1981, pp. 167-174.
30. Silversin, J. B., and Kornacki, M. J.: Controlling dental disease through prevention: Individual, institutional and community dimensions. *In* Social science and dentistry, edited by L. K. Cohen and P. S. Bryant, Federation Dentaire Internationale-Quintessence Publishing Co., Ltd., London, 1984, vol. 2, pp. 145-201.
31. Ripa, L. W., Barenie, J. T., and Leske, G. S.: The effect of professionally administered bi-annual prophylaxes over a two-year period on the oral hygiene, gingival health, and caries scores of school children. J Prev Dent 3: 22-26, January-February 1976.

Model System of Ongoing Care for Native Americans —a 5-Year Followup

ALLEN J. DIETRICH, MD
ARDIS L. OLSON, MD

Dr. Dietrich is with the Department of Community and Family Medicine and Dr. Olson with the Department of Maternal and Child Health, both at Dartmouth Medical School.

Tearsheet requests to Dr. Dietrich at Dartmouth Medical School, Hanover, NH 03756.

Synopsis

In 1979, continuing care from a personal physician was identified as a priority at the Indian Health Service site in Zuni, NM, a rural hospital and ambulatory care center serving 7,000 Zuni people. To encourage such care, a system was established that assigned each patient to a regular physician and organized physicians into teams. Three teams, each consisting of three clinicians and other support personnel, served specific geographic regions of the village.

Five years later, the ongoing care provided for active randomly selected prenatal, diabetic, and general clinic patients was evaluated. The physician staff of the site had gone through a complete turnover during the previous five years. Based on a chart review for the year prior to patient identification, patients saw their regular physician from 48 to 61 percent of the time in all their visits, and their regular physician or his or her team colleague from 71 to 82 percent of the time in all their visits.

Ongoing care from a personal physician or close colleague can be achieved in the Indian Health Service. Organization of physicians into teams appeared to be the critical element in promoting ongoing care at this site where physician turnover is high. Team physicians seldom all leave at once, and ongoing care as a priority is passed on by the attitude of other team physicians, by transfer of specific patients, and by patient expectation. Given the established benefits, ongoing care from a personal provider should be encouraged in the Indian Health Service as in other primary care settings.

ONGOING CARE FROM A PERSONAL PHYSICIAN is a central tenet of primary care, but only recently has this aspect of longitudinal or continuous care been linked to improved health care process or outcomes by rigorous studies (*1, 2*). With publication of the results of a randomized clinical trial that demonstrated fewer emergency admissions and shorter hospital stays for elderly veterans provided continuity of care (*3*), evaluation of the degree of ongoing care provided takes on new importance. In academic and community settings, patients see their regular provider 40 to 70 percent of the time in all their visits (*4–6*).

Although the Indian Health Service provides care for most Native Americans, and promotion of ongoing care from a personal physician at certain Indian Health Service sites has been described (*7, 8*), no rigorous evaluation of the ongoing care actually provided has been published. We report on an evaluation of the ongoing care provided at one Indian Health Service site 5 years after its care system was reorganized to promote ongoing care from a personal provider. We address the question "Can ongoing care from a personal provider be given over time at an Indian Health Service site?"

Methods

We performed a retrospective chart audit of randomly selected patients to evaluate ongoing care during the year prior to an index visit.

The site. The Indian Health Service facility at Zuni, NM, provides care for 7,000 Zuni people. To get to another hospital, patients must travel 35 miles. The Zuni facility has 45 beds, and its 9 clinicians provide a broad range of nonsurgical care through approximately 25,000 visits annually. In 1978, we established a system of health care at Zuni that promoted ongoing care from a personal provider. Previously, patients saw whichever clinician was available for care, and few patients had appointments. While some patients succeeded in obtaining ongoing care from one provider, they were the exception rather than the rule.

As clinicians at Zuni in 1978, we worked to implement a system to improve ongoing care. The village was divided into three geographic regions, each served by a team of three assigned clinicians and other support personnel. A patient from a given region was assigned to one of the three clinicians. Scheduled appointments with the assigned clinician were encouraged by the record room and clinical staff. For nonappointment visits, the patient preferentially saw the assigned provider or one of his or her team colleagues. The system, its design through a public, broadly based political process, and its implementation have been described (*7*). Upon our departure in 1979, we left the supervision of the system in the hands of the record room staff and newly recruited physicians to insure its continuance. No formal encouragement or support of the system by local or regional Indian Health Service administration was established. We felt the system should continue or cease to operate on its own merits.

Study patients. To obtain a random sample of active patients, a 10 percent sample of clinical sessions between April and May 1984 (eight half-day sessions) was identified using a random number table. We selected April and May because new physicians usually start at an Indian Health Service site in July. By the following April, stable physician and patient relationships are usually established. The eight sessions included four general clinic sessions for unselected patients, two for diabetic patients, and two for prenatal patients. Charts of all patients were reviewed for the 12 months prior to the index visit. We identified a patient's regular physician as the physician so designated in the chart. If there was no designation, we considered the physician providing most visits as the regular physician. Physicians confirmed that this assignment reflected their understanding when we queried them about selected patients.

Measures of ongoing care. We used two measures, one because its use is well established and the other because we had applied it previously in 1979. All visits during the 12 months prior to the index visit were counted, including walk-in, after hours, and emergency visits.

1. The UPC, or usual provider continuity measure, described by Breslau and Haug (*9*), is the proportion of a patient's total health care visits over a period that occurred with the patient's usual provider. If a patient had 10 visits, 6 with the usual provider, the UPC is 0.6.

2. In 1979, we measured the percentage of single index visits actually occurring with the assigned provider. We applied this measure again in 1984. At a randomly selected clinic session, the percentage of patients who actually saw their assigned provider gives some indication of the degree of ongoing care.

Table 1. Characteristics of study patients by clinic of index visit

Characteristic	Prenatal	Diabetic	General
Number of patients	20	38	82
Mean age (years)	23	52	25
Percent female	100	75	71
Average number of visits per patient over 12-month period	9.3	9.2	6.8
Average number of providers seen per patient over 12-month period	3.0	3.0	3.1

Table 2. Measures of ongoing care with a personal provider by clinic of index visit

Measure	Prenatal	Diabetic	General
Provider UPC[1]	0.48	0.61	0.55
Team UPC[1]	0.82	0.80	0.71
Percent of index visits with usual provider	70	55	63
Percent of index visits with usual provider or team colleague	80	91	81

[1] UPC measures are the visits over a 12-month period with the usual provider (or team) divided by the total number of health care visits with any provider.

Results

We reviewed charts of 140 patients, 20 seen in the prenatal clinic, 38 in the diabetes clinic, and 82 in the general clinic. These 140 charts represented 92 percent of patient visits that occurred during the selected clinic sessions. Eight percent of the charts were unavailable for review. A summary of patient characteristics is provided in table 1. As expected, prenatal and general clinic patients were younger than diabetic patients, and general patients had fewest average visits per patient. For all visits (including after hours and walk-ins) UPC measures ranged from 0.48 for prenatal patients to 0.61 for diabetic patients (table 2). Prenatal values may have been lower than usual because many clinicians took vacations in April and May. This factor and the weekly schedule of visits in late pregnancy made care from the regular provider impossible at times. The proportion of care (UPC) from the team (the regular physician or team colleague) ranged from 0.71 to 0.82.

In 1979, 8 months after ongoing care was set as a priority, 59 percent of selected single patient visits during regular hours were with the assigned provider (*7*). In 1984, this was 55 percent for diabetic patients, 63 percent for general patients, and 70 percent for prenatal patients. Team physicians were seen in 91 percent of visits by diabetics, 81 percent of visits for general patients, and 80 percent of visits for prenatal patients.

Discussion

These results demonstrate that ongoing care from a personal physician or close colleague can be achieved at an Indian Health Service site. The UPC findings compare favorably with findings from other settings and approach the UPC of 0.71 associated with improved outcomes of care in the study of elderly veterans (*3*). Because there was no control site, we cannot assess the importance of the 1979 reorganization in promoting this ongoing care. However, perhaps of greater importance is the finding that ongoing care had continued and, in some cases, improved, although the originators of the system had left more than 4 years before, and no formal administrative mandate required that ongoing care be provided.

To confirm the validity of these findings, we polled the current clinicians regarding their opinion of the accuracy of the data. They agreed overwhelmingly that the measures reflected their subjective impressions. Furthermore, they confirmed that there was no external mandate to continue the system—just the wishes of patients and physicians. They felt that organization of providers in teams provided the crucial, informal element for the promotion of ongoing care. Physician turnover is high at Zuni, with most staying 2 to 3 years. All three team members seldom leave the site at the same time. Once begun, ongoing care as a priority is thus passed on informally by the previous physician's attitude, by transfer of specific patients, and by patient expectation.

We conclude that ongoing care with a personal physician can be provided at an Indian Health Service site. Reorganizing the care system into teams seems to have been crucial in achieving this. Ongoing care, if carefully planned, introduced, and established, can continue without an external administrative mandate. Given the established benefits, ongoing care from a personal provider should be encouraged in the Indian Health Service as in other primary care settings.

References

1. Breslau, N.: Continuity reexamined: differential impact on satisfaction with medical care for disabled and normal children. Med Care 20:347-360, April 1982.
2. Dietrich, A. J., and Marton, K. I.: Does continuous care

from a physician make a difference? J Fam Pract 15:929-937, November 1982.
3. Wasson, J. H., et al.: Continuity of outpatient medical care in elderly men. JAMA 252:2413-2417, Nov. 2, 1984.
4. Breslau, N., and Reeb, K. G.: Continuity of care in a university based practice. J Med Educ 50:965-969, October 1975.
5. Hill, M., McAuley, R. G., Spaulding, W. B., and Wilson, M.: Validity of the term "family doctor": a limited study in Hamilton, Ontario. Can Med Assoc J 98:734-738, Apr. 13, 1968.
6. Patten, R. C., and Friberg, R.: Measuring continuity of care in a family practice residency program. J Fam Pract 11:67-71, July 1980.
7. Dietrich, A. J., and Olson, A. L.: Political and cultural factors in achieving continuity with a primary health care provider to an Indian Health Service hospital. Public Health Rep 96:398-403, September-October 1981.
8. Family health care popular with Navajos at Fort Defiance. Am Acad Fam Physicians Reporter 6:3-4 (1979).
9. Breslau, N., and Haug, M. R.: Service delivery structure and continuity of care: a case study of a pediatric practice in process of reorganization. J Health Soc Behav 17:339-352, December 1976.

The AHEC Contribution to Social Work Education

ROSEMARY A. DILIBERTO, MSW

Ms. Diliberto is a Program Specialist in the Area Health Education Center Program, Division of Medicine, Bureau of Health Professions, Health Resources and Services Administration, Public Health Service.

Tearsheet requests to Ms. Diliberto, Rm 4C-05, Parklawn Bldg., 5600 Fishers Lane, Rockville, MD 20857.

Synopsis

The Area Health Education Center (AHEC) Program is a Federal initiative funded by the Public Health Service. The goal of the program is to improve the distribution and quality of training for health professionals. Funds are awarded to schools of medicine or osteopathy which in turn subcontract with at least two other health professional schools. Each project recipient must establish an AHEC center to plan and coordinate community-based educational experiences for health professions students in designated health shortage areas.

The AHEC program fosters interdisciplinary training among health professionals. As part of the basic program thrust, some AHECs have included the social work profession in their program design. The Massachusetts AHEC, through Boston University's School of Social Work, established a health care concentration and interdisciplinary rotation that included students from social work, psychology, nursing, and medicine. Other examples of AHEC-sponsored training are presented from Baltimore, the eastern shore of Virginia, and several centers in Massachusetts.

Through the AHEC training mechanism, social work students as well as practitioners in the field have the opportunity to encounter the most current and urgent issues in health care practice.

IN THE MIDST OF THE EXTENSIVE REVAMPING of the health care delivery system occurring in the United States during the last several years, an innovative Federal program has been funding projects to prepare health professionals to provide primary care services to the nation's underserved populations. Recommended in a 1972 report from the Carnegie Commission (*1*), the Area Health Education Center (AHEC) Program was established as a means of improving the distribution and quality of training for health care personnel.

The purpose of this paper is to discuss the AHEC contribution to the education of students in the social work profession. It is suggested that community-based training for social work students through the AHEC program adds a resource to the health care delivery system in a period of flux amidst increasing economic constraints.

Background

The AHEC Program is administered by the Department of Health and Human Services in the Health Resources and Services Administration. Since its inception in 1972, 35 AHEC projects have been funded. Currently, AHECs in 21 States are receiving Federal assistance. As stated in the AHEC Program Guidelines (*2*), Federal funding is