Program Development to Prevent Complications of Diabetes

Assessment of barriers in an urban clinic

ELIZABETH A. WALKER, DNSC, RN
JUDITH WYLIE-ROSETT, EDD, RD
HARRY SHAMOON, MD
SAMUEL ENGEL, MD
CHARLES E. BASCH, PHD
PATRICIA ZYBERT, MPH, PHD
MARJORIE CYPRESS, MS, RN, C-ANP

With the rising incidence and increased prevalence of diabetes in minority populations (1), characterization of the quality of diabetes care for these groups becomes imperative. Standards of medical care developed by the American Diabetes Association (2) form the basis for quality assurance in diabetes care. This commentary describes our intervention experience in an urban primary care clinic that is federally funded to provide care for the medically underserved in Bronx, New York. We previously reported on the characteristics of care provided to diabetes patients in seven such clinics in the New York City area. Chart audits revealed that although the majority of diabetes patients had six or more clinic visits per year and frequent laboratory tests for blood glucose, they had not received recommended screening for chronic complications of diabetes or nutritional assessment (3,4).

This 1-year intervention was designed to facilitate screening for chronic diabetes complications and to identify the barriers to implementing standards of diabetes care in an urban clinic serving minority populations. One intervention clinic and two control clinics (designated clinics A and B) were randomly assigned. Over 60% of the diabetes patients at each clinic were of Hispanic origin and over 60% were female. Chart audits were performed at baseline and at 1 year postintervention. Qualitative data were collected through interviews at all three clinics at baseline and again at the 1-year follow-up for the intervention clinic only.

Common strategies for evaluation of medical care include audits of medical records, direct observation, individual interviews, and group discussions; however, each strategy has limitations. Chart audits reflect provider documentation rates as well as actual service, while direct observation or interviews may be reactive and provide biased estimates (5). We used multiple methodologies to explore the same problem, known as method "triangulation" (6), to clarify study results by providing a context for the analyses.

Chart audits for basic elements of diabetes care were completed at each clinic. The reliability of the chart audit instrument has been reported elsewhere in detail (7). Interview and observation revealed that no clinic had diabetes management protocols for their primary care providers or either written or informal protocols for patient education. In each of the baseline group discussions with medical staff, a theme emerged of resistance to protocols dictating elements of care and to modifications in the care system that would involve additional record keeping (e.g., flow sheets for complications screening).

Using data obtained from this baseline assessment, our Diabetes Research and Training Center (DRTC) staff used a program-development consultation approach (8) to identify and prioritize specific strategies. Five elements of diabetes care were identified by the intervention clinic staff and targeted for improvement. These included ophthalmology referral, nutrition assessment by a dietitian, referral for an ECG, foot examination by primary care provider, and referral for a foot exam.

The intervention was implemented with planned biweekly communication between the DRTC clinical experts and the clinic health care providers, their quality assurance committee, or the medical director. Program development included a clinic-initiated plan to designate certain months of the year as "Diabetes Health Maintenance Months" to emphasize the need for a yearly medical exam. Other system changes reinforced by our consultation were budget revisions early in the intervention year for the creation of two new positions: a dietitian to be available for diabetes nutrition counseling and a health educator. Diabetes care seminars were regularly scheduled with providers over the year. Role delineation was emphasized as two providers were mentored by DRTC staff to develop

From the Albert Einstein College of Medicine (E.A.W., J.W.-R., H.S., S.E., M.C.), Bronx; and the Columbia University Teachers College (C.E.B., P.Z.), New York, New York.

Address correspondence and reprint requests to Elizabeth A. Walker, RN, DNSc, CDE, the Diabetes Research and Training Center, Albert Einstein College of Medicine, 1300 Morris Park Ave., Rm 705, Bronx, NY 10461.

Received for publication 13 May 1994 and accepted in revised form 30 March 1995.

DRTC, Diabetes Research and Training Center; NIDDM, non-insulin-dependent diabetes mellitus; ECG, electrocardiogram.

patient education classes for blood pressure control and weight management, and medical assistants were instructed to remove footwear when patients were escorted to examining rooms. Process evaluations and consultations by DRTC staff continued throughout the 1-year intervention.

Patients were included in the analyses if they had medical chart documentation covering both the baseline and follow-up periods. Loss to follow-up at 1 year was common in all three clinics: 36.6% of patients (26 of 71) in the intervention clinic, 25.6% (23 of 90) in control clinic A, and 28.0% (30 of 107) in control clinic B. Analysis of the pre- and postintervention chart audit data from the three clinics for the frequencies of five targeted care elements reveals no significant improvements in diabetes care. On average, no clinic had more than one out of the five targeted care elements at baseline or postintervention.

Chart audit methodology has noted limitations in terms of content validity. Screening for diabetes complications could have occurred during a medical visit but was not documented. Alternately, the patient may have sought outside screening for diabetes complications without reporting this to the primary care provider or, importantly, the provider may not have queried the patient directly about off-site diabetes screening.

After the 1-year intervention, face-to-face interviews were conducted with the eight providers (six physicians and two physician assistants) to provide a context for evaluating the apparent lack of impact of the intervention. All the providers indicated a belief that their diabetes patients did not have the requisite knowledge concerning eye disease, foot complications, and nutrition for self-management. The majority of the providers reported that their patients did not generally seek information concerning complications of diabetes unless the patient had experienced a complication of diabetes or had shared someone else's experience. All eight providers, however, reported that they considered patient education as part of their primary care responsibility. Although a position for a health educator had been funded early in the intervention year, three educators had been hired and had vacated this position during that 1-year time-period.

Barriers to referrals for complication screening continued throughout the intervention year, despite the fact that a podiatrist and a dietitian were on-site at the intervention clinic and a specific off-site ophthalmologist was designated for referral of the clinic patients. In response to "What do you think are the major barriers in this setting. . . " for screening or referral for diabetes complications, six providers indicated there were no real barriers.

Two themes emerged from the postintervention provider group discussions and interviews. One theme was that visits in this primary care setting were generally for acute problems or medical needs, such as prescription refills, rather than chronic disease management. Medical clinic use was described as "urgent care." A second theme was that non-insulin-dependent diabetes mellitus (NIDDM) is a "mild" disease, especially compared with the more compelling health care problems, for example, drug addiction, faced by this clinic population.

Intervention clinic providers indicated a willingness to identify specific intervention needs to improve diabetes care, they participated in regularly scheduled continuing education specific to these needs, and they cooperated in several system changes to improve care. These same providers, however, did not accept suggested changes in documentation of care. In particular, they were resistant to the initiation of flow sheets to document various standards of care for diabetes.

Process evaluations provided insight into the discontinuity in care within this clinic. Rapid staff turnover in the newly created health educator position, a change in the referral ophthalmologist within the intervention year, and language barriers were problematic and may have contributed to a disruption of services for the clinic population. Finally, performance of ECGs was hampered by both equipment malfunction and lack of a designated trained person to do the ECGs.

None of these factors were under the control of the DRTC consultants during our 1-year program-development intervention, which was guided through consultation. Importantly, when the clinic staff's role needed to change from passive (e.g., attending on-site seminars) to active (e.g., documenting foot exams), providers may not have been prepared to make behavior changes or the clinic system for care may not have supported these changes.

The educator Goodlad made the important point that ". . . often innovations that are thought to have failed really have not; they really were never implemented" (9). Research involving interventions for preventive care in medically underserved primary care settings may run the risk of not being implemented because of the priorities of the acute medical and psychosocial challenges in these urban populations. A lesson learned is that there can be a wide gap between awareness and action: in an overburdened system, greater assessment time, preparation for change, resources, and perhaps persuasion are needed to ensure implementation of an intervention.

Screening for diabetes complications is episodic and time-dependent for each screen; for example, a dilated eye exam should be done at least once each year and is often a referral, while lower extremities should be checked at each routine medical visit (2). Reminders or "flagging" the chart for not one but multiple episodic care standards adds complexity to systems. Diabetes standards may be more difficult to implement than care standards for other more prevalent chronic diseases like hypertension, where the time frame for the care and screening is either more simple or more consistent.

Our qualitative results point to challenges in using a consultation model for improving standards of care and to problems in assessment of change through chart audit. The systemic stress on inner city health care programs appears to be a major barrier to effecting improvement in standards of diabetes care through internal program development using existing resources. If providers are not ready for an action-oriented plan, then an intervention must be designed for the particular stage of readiness for change of those involved in the intervention (10).

Controlled intervention studies to improve standards of care for diabetes in primary care clinics are few. Deeb et al. (11) reported a significant improvement in three intervention clinics in screening for complications of diabetes. Their intervention included designation of a nurse coordinator to implement the intervention within each site, a 2-day off-site workshop attended by a multidisciplinary team including the chief physician from each center, quarterly problem-solving consultation with diabetes experts, and patient education program materials.

Interventions in health care delivery systems may also benefit from concentration on improving one standard of care at a time. In a randomized controlled study, Litzelman et al. (12) showed the positive impact of a provider-system-patient intervention for NIDDM patients in academic general medicine clinics. Their intervention concentrated on risk-reduction strategies for lower extremity abnormalities. Self-care education, follow-up telephone calls, and behavioral contracts with patients by nurse clinicians, as well as chart-based provider reminders for foot assessment, were included in this successful intervention. Both of these successful interventions appeared to have costs beyond our program-development approach through consultation.

An emphasis on the importance of maintaining a medical record for managed care of chronic disease is paramount, especially for quality assurance in meeting standards of care. A complete medical record is also important to remind multiple providers of the need for complications screening in the face of acute chief complaints from patients during medical visits. Innovations to improve documentation are needed, especially records providing a flexibility for varying the time frames for specific standards of care. Possibilities include computer-based medical record systems with software for this individualization, as well as printed flow sheets for ease in documentation. Formative evaluation for feasibility and acceptability of these documents is important in their development.

Considerable effort may be expended after the Diabetes Control and Complications Trial to improve metabolic control in most patients with diabetes (13). But meeting basic standards of care for detection and prevention of complications of diabetes must not be put aside, especially in the minority communities with high prevalence of diabetes. The diabetes community continues to face the challenges of the *Healthy People 2000* objectives (14) at this midway point in the decade.

Acknowledgments— This research was supported in part by NIH Grants P60DK20541 and EY09895.

References

1. American Diabetes Association: *Diabetes: 1993 Vital Statistics*. Alexandria, VA, American Diabetes Association, 1993
2. American Diabetes Association: Standards of medical care for patients with diabetes mellitus. *Diabetes Care* 17:616–624, 1994
3. Wylie-Rosett J, Engel S, D'Eramo G, Mazze R, Murphy J, Shamoon H, Slagle S, Villeneuve M, Wilson J, Fleischer N: Delivery of diabetes care to low-income patients: Assessment of a federally funded program. *Diabetes Educ* 15:366–369, 1989
4. Wylie-Rosett J, Cypress M, Walker EA, Engel S, Melkus GD, DiLorenzi T: Assessment of nutritional care provided to patients in primary care clinics. *J Am Diet Assoc* 92:854–856, 1992
5. Canfield M, Clarkin J, Coyne L, Grob M: Reliability of data taken from medical charts. *Psychiatr Hosp* 17:173–179, 1986
6. Basch CE: Focus group interview: an underutilized research technique for improving theory and practice in health education. *Health Educ Q* 14:411–448, 1987
7. Wylie-Rosett J, Cypress M, Basch CE: Diabetes quality assurance checklist: assessment of inter-rater and intra-rater reliability. *Diabetes Educ* 18:411–415, 1992
8. Wylie-Rosett J, Villeneuve M, Mazze R: Professional education in a long-term care facility: program development in diabetes. *Diabetes Care* 8:481–485, 1985
9. Klein MF: Tyler and Goodlad speak on American education: a critique. *Educ Lead* 33:565–570, 1976
10. Ruggiero L, Prochaska JO: Readiness for change: application of the Transtheoretical Model to diabetes (Conclusions). *Diabetes Spectrum* 6:58–60, 1993
11. Deeb LC, Pettijohn FP, Shirah JK, Freeman G: Interventions among primary-care practitioners to improve care for preventable complications of diabetes. *Diabetes Care* 11:275–280, 1988
12. Litzelman DK, Slemenda CW, Langefeld CD, Hays LM, Welch MA, Bild DE, Ford ES, Vinicor F: Reduction of lower extremity clinical abnormalities in patients with non-insulin-dependent diabetes mellitus. *Ann Intern Med* 119:36–41, 1993
13. Fisher EB, Heins JM, Hiss RG, Lorenz RA, Marrero DG, McNabb WL, Wylie-Rosett J: *Metabolic Control Matters: Nationwide Translation of the Diabetes Control and Complications Trial*. Bethesda, MD, National Diabetes Information Clearinghouse, 1994 (PHS Document #94–377)
14. U.S. Public Health Service: *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*. Washington, DC, US Govt. Printing Office, 1991 (DHHS publ. no. PHS 91–50212)