Creative Strategies to Improve Diabetes Care

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The pager goes off for the fourth time in an hour. The case manager for the medicine team pages you to see a patient admitted – for the second time in a month- with diabetic ketoacidosis. A nurse on the transplant unit requests a consult for a kidney transplant patient who has high glucose levels and needs to learn how to give insulin. A physician in the clinic calls you to see a patient with out-of-control diabetes who needs to learn glucose monitoring – right now! The, still before lunch, the endocrinologist pages you for your insulin pump patient.

This was a typical day when I first came to Stanford as the inpatient Diabetes Clinical Nurse Specialist. On any given day, some 10 to 15 percent of patients at Stanford University Hospital have diabetes – some 2,500 patients a year, admitted throughout the hospital. In addition, the Stanford clinics see thousand of outpatients with diabetes each year. The first week on my job, my boss asked me to improve education, reduce length of stay, and decrease readmisions for our diabetes patients. No simple task!

It was clear from the start that many types of activities, by many types of caregivers, needed to converge in a multidisciplinary effort across the continuum of care. Over time, collaboration with colleagues throughout the institution resulted in the development of four key strategies to improve diabetes care.

Step 1
Increase staff knowledge and confidence

Given the prevalence of diabetes patients throughout the hospital, all staff nurses needed the knowledge and skills – and throughout theme the confidence – to provide diabetes education at the bedside. My colleagues and I thus developed a combination of approaches that, together, increased diabetes knowledge for the hundreds of specialized nurses throughout the hospital.

Diabetes Resource Committee (DRC)
The hospital's existing Diabetes Resource Committee had dwindled down to six active members when I joined the staff. Given the committee's central role in disseminating information and facilitating ongoing improvement in diabetes care, I made its revitalization a key priority. Aggressive recruitment efforts increased the active membership from 6 to 35, including pharmacists and nutritionists as well as staff nurses. As they work with their colleagues on the units every day, committee members actively increase knowledge of diabetes. They serve as role models, present inservices, provide ongoing updates, orient new staff to diabetes care guidelines, and participate in outcome studies.

Diabetes Newsletter. The need to reach hospital staff and physicians led to the creation of a quarterly newsletter, *Diabetes Dialogue*. Each issue includes a brief review of the hospital's goals for diabetes management, current activities, news flashes, and recent accomplishments. Diabetes quizzes are a frequent feature.

Nursing Orientation. New staff orientation provides a perfect opportunity to promote the hospital's standards of diabetes care and resources. I am scheduled to provide a one-hour survival skills training during orientation to outline our diabetes care program. In addition, new staff members meet with DRC members on their unit who reinforces the goals of diabetes care, reviews answers to a short self-study module and discusses diabetes-related charting issues with the new nurse.

Stanford Diabetes Certification Program. To promote expertise in diabetes management and patient education within the nursing staff, my colleagues and I established the Stanford Diabetes Certificate Program. To become certified, a nurse must attend an all-day seminar on diabetes management, pass a rigorous test, carry out clinical training assignments, and complete a special project. All activities must be completed within a year. To date, more than a dozen nurses have earned certification and two have gone on to become Certified Diabetes Educators.

Step 2
Provide physicians and nurses guidelines for diabetes management

After I started the diabetes program, I quickly realized that patients with diabetes did not receive consistent or optimal management. An initial chart audit showed that glucose levels during hospitalization were greater than 250 mg/dl at least half the time. In addition, patients were discharged on hastily constructed diabetes plans that did not adequately control glucose levels at home, resulting in readmissions for hyperglycemia or hypoglycemia.

To develop strategies to improve management, I assembled an informal team including nurses, pharmacists and physicians to develop hospital-wide guidelines. In 1994 the team established five goals for diabetes management:

Stanford's Goals for Diabetes Management

- Maintain glucose between 70 and 200 mg/dl during the hospital stay
- Use insulin sliding scale for no more than two days as the only form of glucose management.
- Do not discharge any patient on insulin sliding scale as the only form of glucose management.
- Schedule a follow-up appointment with the patient's physician within ten days of discharge.
- Provide every diabetes patient with a diabetes education folder upon admission.

Along with these guidelines, the multidisciplinary team developed specific clinical tools to improve diabetes management during acute illness. The most urgent need was a way to determine appropriate insulin dosing. Since no standard hospital scale existed in the literature, team members collaborated to develop a system based on current practice, designed to keep glucose in the 70-200 mg/dl ranged specified by the guidelines. The scale was printed on a pocket sized laminated index card. With the scale parameters always available, physicians and nurses had a common tool to determine needed insulin adjustments. As a result, clinicians became more comfortable with aggressive insulin management and the importance of keeping glucose in a specified range. The success of this format led the team to develop three other "pocket cards" with guidelines on managing diabetic ketoacidosis, setting up an insulin drip and managing diabetes during acute illness.

Step 3
Improve education and clinical management for inpatients and outpatients.

As a key goal, the Diabetes Resource Committee determined that every patient admitted with diabetes would receive a diabetes education folder. After three years of work, the committee developed a standard set of diabetes education handouts, organized in a special folder. Materials in the folder included a patient self-assessment, 20 one-page handouts on topics ranging from types of diabetes to sick-day management, a brochure on the hospital's diabetes care program, and a sheet on which the patient can document insulin dose and glucose levels. Staff nurses give each patient a folder on admission; they later assess knowledge of diabetes survival skills and review topics that interest the patient.

When my position was created, requests for consultations on diabetes patients were increasing rapidly from the outpatient clinics as well as the hospital. In addition, Stanford is a multi-organ transplant center, and the number of patients with diabetes was steadily growing. Within a few years, it was clear that the medical center needed an outpatient CNS to provide a structured outpatient diabetes education program. Another diabetes CNS joined the team. Her tasks were to follow-up on high risk patients, provide individual counseling, create interdisciplinary classes in diabetes management and form part of the patient care team in the endocrine clinic.

Given the prevalence of diabetes in-patients with organ transplants, Patsy Obayashi, RD, MS, Clinical Dietitian for the transplant team and myself, developed a weekly program to increase diabetes self-care skills before and after transplantation. Besides this two-hour program, a weekly drop-in group during the transplant clinic provides follow-up and feedback. To extend diabetes education into the communities around Stanford, there is a monthly diabetes support group open to the public, and we offer blood glucose screening and educational programs to the community.

High-risk inpatients or those who need further education and support are referred on discharge to one of these programs. In addition, both clinical nurse specialists collaborate with specialty clinics, home care, pharmacy, nutrition services, community resources, and individual physicians to make sure that all patients receive the care and support they need to maintain optimal health.

Step 4
Establish interdisciplinary teams.

For the first few years, there was no formal team to manage diabetes care, and little structured interaction between the clinicians providing this care. To facilitate ongoing interdisciplinary collaboration – essential to optimal diabetes care of patients with diabetes – a Diabetes Team was established. A cohesive group quickly evolved and began to identify areas for program improvement to provide continued excellent diabetes care throughout the institution and along the entire continuum of care. Chaired by the two diabetes CNSs and the medical director of endocrinology clinic, the team also includes representatives from Ophthalmology, Podiatry, Nutrition Services, Pharmacy, Social Work Services, Case Management, and Rehabilitation Services. The team's specific activities include establishment of diabetes care goals, clinical staff education, and quality improvement activities designed to evaluate diabetes management in inpatient and outpatient settings.

Today, my day is not less busy than it was when I first stared, but it is busy in different ways. There is a strong educational program in place – for staff and patients alike and a network of caregivers throughout the hospital involved in management and education of diabetes patients. Empowering the clinical staff with knowledge about diabetes, and with the tools they need to apply this knowledge, has led to improved outcomes both for Stanford's diabetes patients and the institution.