

HOSPITAL CASE MANAGEMENT™

the monthly update on hospital-based care planning and critical paths

February 2000 • Volume 8, Number 2 • Pages 17-32

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Part 3 of 3*

Pilot study proves CM's effectiveness in managing diabetes

Lovelace Health Systems began working on its diabetes disease management-case management model last year. The health system ran a pilot study and developed a protocol that implements its 'Episodes of Care' program in diabetes and congestive heart failure. Lovelace has no hard data yet, but an interim look at how the system is doing is encouraging Cover

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Pilot study proves CM's effectiveness

Program improved testing rates for sickest patients

Preliminary results of a special pilot diabetes study at Lovelace Health Systems in Albuquerque, NM, show that a significant number of patients have already experienced a notable decrease in their glycohemoglobin levels, indicative of improved blood glucose control.

Hospitalizations in the intervention group are infrequent, although there has been no comparison with controls at this point in the study. As important as these apparent improved clinical outcomes are, **Vicki Mitchell**, director of case management for Lovelace, says, "The most gratifying aspects of this study so far have been the positive feedback from patients and the significant improvement in the case managers' practice skills and knowledge base in working with diabetes patients."

Mitchell reports that her department began working on its diabetes disease management-case management model in 1998. The department has had a long-standing interest in developing case management protocols to support implementation of the organization's "Episodes of Care" disease management program. While the case managers had been providing traditional case management interventions to reinforce the physician plan of care, the staff recognized the difficulty of measuring case management outcomes within a routine practice framework. (See "Lovelace diabetes plan hikes testing rates," p. 19.)

The idea of developing specific disease protocols and implementing them in a research environment had tremendous appeal. A welcome first opportunity

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American Health Consultants® is A Medical Economics Company

On the horizon for your diabetes patients

These clinical findings and technological innovations could revolutionize the way you manage diabetes 22

Supplement: Critical Path Network

This month, the focus is on pediatric diabetes care. We present an effective diabetic ketoacidosis (DKA) pathway used by Children's Hospital of Wisconsin in Milwaukee. The certified diabetes educator there says, 'Whether patients are in DKA and you already know they have diabetes, or whether they are newly diagnosed and in DKA, the difference lies in what teaching plans you should choose, not what medical care they should receive.' Included in our report is the facility's pathway and more DKA advice from the Diabetes Treatment Centers of America 23

How to measure the value of your case management program

Today, all programs must prove their value to the organization and its patients, and hospital case management programs are no different. Case managers are being asked to substantiate the positive impact of their services in three areas: clinical outcomes, financial benefits, and customer satisfaction. We include a form you can use to measure satisfaction with home health agencies 29

COMING IN FUTURE ISSUES

Care Pathways for Your Organization to Consider

- **A care pathway for your deconditioned frail elderly:** You can individualize it for your facility depending on needs, support systems in place, resources, and wishes
- **A care pathway for lower-extremity amputations:** Clinical indications: nonhealing wound, traumatic injury, gangrene not responding to other therapies, failed bypass graft
- **A care pathway for total knee replacement:** Clinical indications include replacement of failed arthroplasty, chronic knee pain with limited joint motion, radiographic evidence of joint destruction, or severe narrowing
- **A care pathway for pressure ulcer therapy:** Recognition, assessment, documentation, defining goals
- **A care pathway for falls and fall risk:** Age-related factors — including increased psychomotor retardation, reduced sensory output, increased sway, and slowed reaction time — all contribute to fall risk

came when New York City-based Pfizer Corp. provided financial support for a six-month diabetes outcomes study.

In 1998, the Health Care Financing Administration (HCFA) sent out a request for proposal looking for two case management departments in the country to be demonstration sites — one in diabetes and one in congestive heart failure (CHF) — to assess the impact and cost-effectiveness of case management for Medicare fee-for-service beneficiaries. Lovelace submitted a proposal to HCFA for each project in September 1998. As the facility waited to hear about the awards, the case managers converted what they hoped would be a three-year HCFA project into a six-month pilot study, and they received their Pfizer grant for implementation of the pilot. The title of their pilot study is "The Impact of Case Management on Utilization and the Cost of Diabetes."

The pilot consisted of 50 intervention patients and 50 control patients. The selection criteria included:

- a diagnosis of diabetes;
- the presence of comorbidities;
- the highest-cost diabetes patients within the health care system.

"It's hard to show change in a patient who is well-managed or who has mild or moderate diabetes," explains Mitchell. "We took the sickest patients and the highest utilizers."

The protocol team wrote a Diabetes Protocol Manual that was used as a handbook for the case managers' training. "The manual has been used as a reference tool throughout the course of our study," says Mitchell. "The case managers' training involved didactic presentations by an endocrinologist, a diabetes educator, research staff, a psychologist with expertise in motivational training and behavioral techniques, and members of the case management protocol team."

Intervention patients were given pre- and post-study quality-of-life surveys, such as the SF-36 and the Diabetes 2.1, a quality-of-life tool customized for diabetics. They also received intensive case management through weekly case management interventions — home visits, clinic visits, or telemanagement.

"The case managers tracked their patients' blood sugar levels, exercise, diet, standard lab work, and medication compliance," says Mitchell. "They also facilitated communication between the patients and their primary care physicians, and they coordinated visits with a diabetes educator

Lovelace diabetes plan hikes testing rates

Two years ago, 225-bed Lovelace Medical Center in Albuquerque, NM, developed a strategic diabetes program to improve Type 2 patient outcomes. Part of Lovelace's "Episodes of Care," the program combined patient and provider education with detailed provider reports. The program:

- enabled providers to access patient information electronically in each exam room;
- generated quarterly provider support reports on HbA_{1c} rates and results of entire patient panels, including lists of high-risk patients;
- formed a Senior Operating Team to coordinate quality functions throughout the health care system;
- made primary care physicians accountable for attending education programs;
- increased the availability of education programs by reassigning diabetes educators to nine clinics across the city;
- established diabetes clinic days at several sites to facilitate one-stop patient care, education, and evaluation.

The result: HbA_{1c} testing rates went from 43% to 93%, and the percentage of patients in good to optimal control went from 68% to 75%. ■

when it was appropriate." The project's short-term goals were to improve the patients' understanding and self-management of their diabetes and to improve their overall quality of life. Long-term goals were to improve clinical outcomes and reduce unnecessary health care costs related to diabetes.

Intervention patients received a \$10 grocery store gift certificate at the beginning, middle, and end of the study to encourage them to participate in the study.

Control patients received their usual medical care, which typically included seeing their doctors, seeing diabetes educators, and an occasional traditional case management intervention if they were referred for these services by the physician or other health care team member.

In December, Lovelace received notification that it had been awarded research grants to

become a three-year demonstration site for both diabetes and CHF. "We're very excited," says Mitchell, "and our pilot study has helped us to refine our protocol and to prepare for these larger projects. This type of rigorous study has provided insights that have helped us to fine-tune our practice techniques with diabetes patients. Though we hope to demonstrate the value of case management through the clinical, cost, and utilization outcome data that will be available later in 2000, we have already been impressed by the feedback that our patients have given us that indicate changes in their lifestyles and quality of life."

For more information, contact Vicki Mitchell, director, case management, Lovelace Medical Center, Albuquerque, NM. Telephone: (505) 262-3893. E-mail: vicki.mitchell@lovelace.com. ■

Physician/CM team boosts diabetes documentation

IHI spurs ongoing team initiative

University Health Systems of Eastern Carolina in Greenville, NC, targeted diabetes as a major initiative in June of 1998. The Institute for Healthcare Improvement (IHI) in Boston invited the team to present its outcomes at the IHI National Congress, "Improving Care for People with Chronic Conditions," held Oct. 28-29, 1999, in Dallas.

"That's how the case management aspect of my job started," says **Sylvia English**, clinical nurse specialist and certified diabetes educator at Pitt County Memorial Hospital, a part of the 750-bed system. "Until then, my job had been limited to inpatient diabetes education."

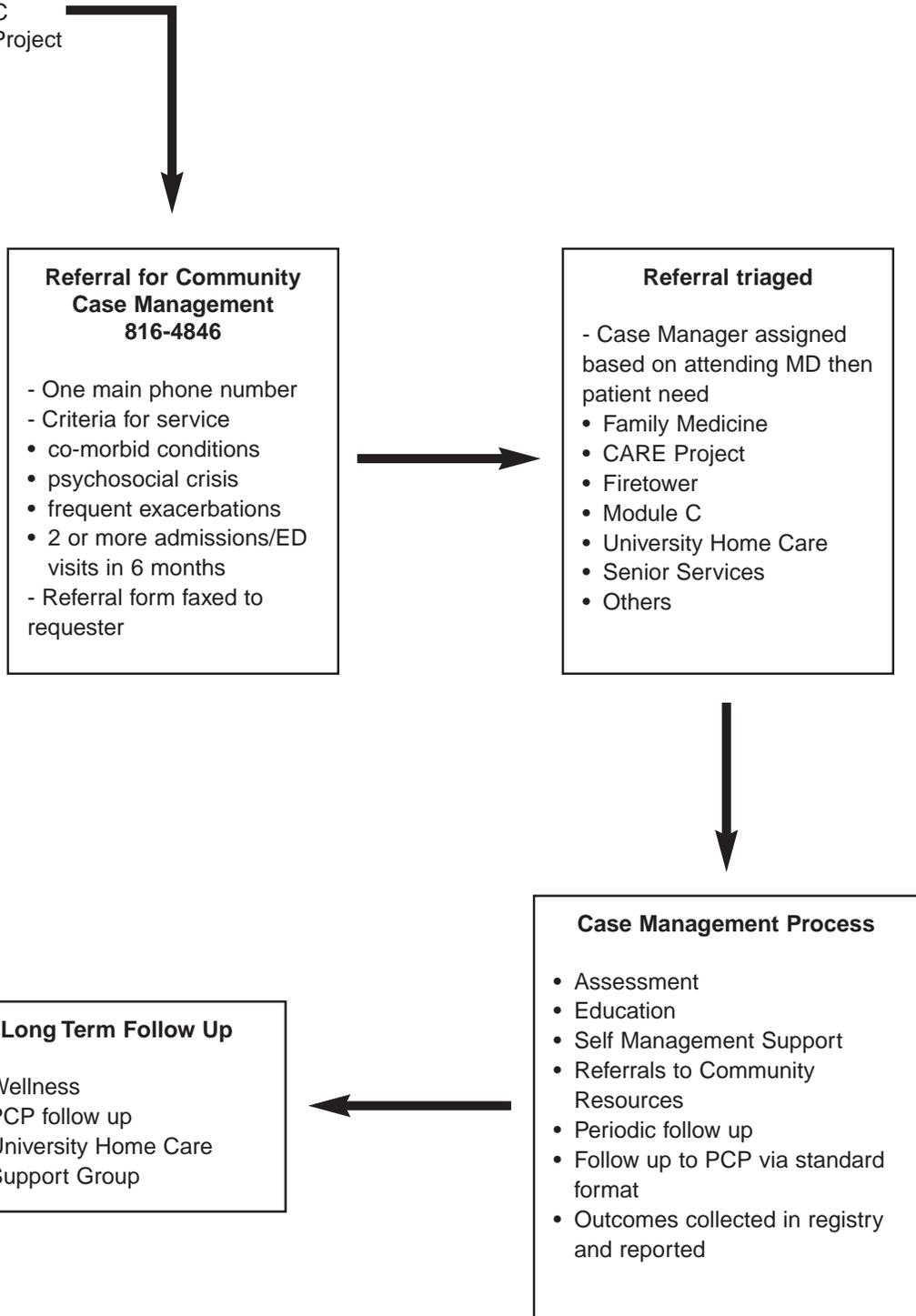
When team members got to where they felt they could take on some diabetes case management, "some of us got together and set up a format," says English. "Little by little, as word is getting out, we have begun to get some referrals. The idea is catching on among the physicians." The idea is catching on among the physicians. "If a physician sees a patient with multiple comorbidities and decides he or she can't address all

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Community Case Management Referral Process

Referral Source

1. MD office/clinic
2. University Home Care
3. Health Department-FCC
4. Pitt Partners Diabetes Project
5. School Health Nurses
6. Wellness
7. ETC



Source: University Health Systems of Eastern Carolina, Greenville, NC.

the patient's needs, the physician refers the patient to case management. (See **chart showing the referral process, p. 20.**) English is currently following eight patients who have been referred to her by their attending physicians.

The project is just beginning, so the team has no final outcomes yet, but so far, self management plan documentation has increased from 34% to 81%; smoking cessation counseling went from 4% to 60% and nine people have quit; and microalbumin screening went from 65% to 74%.

English says the team owes the project's success to these elements:

- sharing clinic-specific data with staff;
- creating a dedicated work group;
- setting specific criteria for case management services;
- integrating efforts across the system;
- using available resources.

Barriers have included a lack of information technology, geography, rural practice settings, and — last but not least — the flood of the century that took place in October 1999.

For more information, contact Sylvia English, clinical nurse specialist and certified diabetes educator, University Health Systems of Eastern Carolina (Pitt County Memorial Hospital), Greenville, NC. Telephone: (252) 816-5136. E-mail: Senglish@Pcmh.com. ■

New survey measures diabetes satisfaction

Asking patients 'How're we doing?' gets results

Because surveys are such an effective way to measure satisfaction, a team working with **David B. Nash, MD, MBA**, associate dean and director of the Office of Health Policy at Jefferson Medical College in Philadelphia, developed a reliable and valid instrument, the Disease Management Evaluation Tool (DMET) — the first of its kind. With the help of a grant from Hoechst Marion Roussel of Kansas City, MO, the DMET team has completed testing the instrument and has a paper containing outcomes data under review by the journal *Diabetes Care*. The team will continue to test and refine the DMET next year.

In the course of implementing their diabetes health management programs, Jefferson staff

discovered one important fact: Patients' satisfaction with their diabetes program is closely related to their participation. Effective disease management requires active patient participation, and improving upon areas in which patients are dissatisfied is critical to enhancing their level of participation.

The survey tool will enable case managers to assess the satisfaction level of their patients. "Case managers should be interested in our findings," says Nash, "because this survey helps us create better programs and helps patients become more aware of their disease, resulting in bringing down their levels." And once the instrument is copyrighted, Nash says the team will loan it to anyone who wants to see how satisfied their own patients are with their diabetes disease management program.

Why does the instrument work so well? "No one has ever thought to create a tool specifically to check on how satisfied patients are with a diabetes disease management program," says Nash. "Up until now, what they have been trying to do is evaluate the effectiveness of their programs, but no one has ever asked the patient what he or she thinks about them."

"It's so interesting that no one has asked straightforward questions like, 'Are we helping you?' and 'How are we doing?' We're looking at a niche that hasn't been looked at before," says **Lisa E. McCartney**, Nash's assistant project director in the Office of Health Policy and Clinical Outcomes at Jefferson. "Yes, there's been follow-up, but no one has asked specifically about the disease management program. That's why this is such an interesting project."

How will these good results affect future disease management programs? "We'll listen very closely to what patients have to say and see if we can improve our program based on their feedback," says Nash.

The first step in the project was to form focus groups of patients who would generate ideas so the team could develop a questionnaire that measured patient satisfaction accurately. The DMET contains 39 questions in six domains: meetings, general complications, personal nutrition, personal physical activity, time commitment, and acute complications.

The survey includes these questions:

- How satisfied are you that the meeting topics discuss the kind of diabetes YOU have?
- How satisfied are you with the flexibility you have regarding what you can and can't eat?

- How satisfied are you with your understanding of how depression can change your sugar levels?

Responses can range from “very dissatisfied” to “very satisfied.” The instrument addresses process, content, and outcomes of care. Although the three common strategies of glucose monitoring, physical activity, and nutrition are the general focus, the tool’s main theme is to assess how satisfied patients are with what they learn from the diabetes program and how well they can apply that knowledge.

For more information, contact:

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ON THE HORIZON FOR YOUR DIABETIC PATIENTS

DKA kids shown to be at high risk for death

British investigators recently reported that children and young adults with insulin-dependent diabetes are at increased risk for death from diabetic ketoacidosis (DKA).¹ (See related pathway in *Critical Path Network*, p. 23.) They analyzed records from the first half of this decade for causes of death in young people when diabetes appeared on the death certificate, and found that 83 of 128 were a direct result of diabetes. Of 45 youths who died in the hospital during treatment for DKA, 28 had confirmed cerebral edema. In another nine, cerebral edema was listed as a possible cause. The authors note that a large number of boys and young men died at home with poorly controlled diabetes.

Reference

1. Edge JA, Ford-Adams ME, Dunger DB. Causes of death in children with insulin dependent diabetes 1990-96. *Arch Dis Child* 1999; 81:318-323. ▼

Depression, anxiety, stress can affect sugar control

Psychological factors can have a profound effect on the ability of diabetics to control their blood sugar, according to a recent study.¹

Among diabetic patients who learned relaxation techniques with biofeedback, those with the highest levels of depression, anxiety, and daily stress were least successful in reducing their blood sugar. Investigators studied 18 adults with insulin-dependent diabetes, half of whom received medical care in addition to learning biofeedback-aided relaxation techniques. Half received only medical care. The patients who learned relaxation techniques were taught in 12 sessions, each lasting 45 minutes, and were encouraged to practice the techniques twice a day at home.

After four weeks, the researchers found no significant difference in blood sugar levels between those who received relaxation therapy and those who did not. However, they found that relaxation training did benefit patients who weren't suffering from depression and anxiety. Among 12 patients who were not depressed, those who practiced relaxation techniques lowered their blood sugar levels about 9%, with no change in those who did not. Similarly, among nine patients who were not anxious, those who practiced relaxation techniques reduced their blood sugar levels by about 12%, with no change in those who did not.

“Subjects characterized by relatively high depression and anxiety scores took longer to complete the treatment protocol, which may be reflective of poorer adherence,” wrote one of the investigators. She noted that other researchers have found that treatment with cognitive behavioral therapy or serotonin reuptake inhibitor antidepressants can improve mood and blood sugar control in diabetics with depression. The scientists plan to study the benefits of adding therapy or antidepressants to biofeedback and relaxation therapy in diabetes treatment.

Reference

1. McGrady A, Horner J. Role of mood in outcome of biofeedback-assisted relaxation therapy in insulin dependent diabetes mellitus. *Appl Psychophysiol Biofeedback* 1999; 24:79-88. ▼

(Continued on page 27)

CRITICAL PATH NETWORK™

Diabetic ketoacidosis path to automate standing orders

All but very sickest patients treated in outpatient setting

Joan Totka, RN, MSN, CDE, clinical nurse specialist and certified diabetes educator at Children's Hospital of Wisconsin in Milwaukee, says her diabetic ketoacidosis (DKA) pathway has been in continual revision since 1991. "Our original clinical path started out like any other, with chart reviews, trying to get a standard of care for practice," she explains. "The biggest changes, of course, were over the first couple of years, but there's always a little tweaking here and there."

Much care shifted to outpatient basis

The length of stay for diabetes patients at Children's Hospital had been four to seven days. Then the hospital got it down to about two and a half days for newly diagnosed patients and one and a half days for a known diabetic child. "Now that we take care of all but the very sickest on an outpatient basis, the average length of stay is typically one and a half days," says Totka. The pathway deals with trying to stabilize the patient over the first 24-48 hours; then the outpatient care kicks in.

"The biggest change in our clinical path is that we've revamped our outpatient program," she says. "The clinical path is almost like a cover letter that drives the standing orders, medical protocols, and the nursing teaching plans." Their original paths were several pages long — a whole documentation instrument with nursing interventions, medical orders, and so on. "[The DKA pathway is] more of a medical orders kind of path," she says. "The nursing intervention is choosing the right teaching path."

Eventually, this path will be computerized. "Soon, all the interventions on the path will be on a menu for the doctors to pick and choose from," Totka says. Computers will be placed throughout the hospital at the nursing stations.

But is it realistic to expect that physicians will follow this path, computerized or not? "Yes," she says. "When the doctors enter their orders, the plan will be in front of them. They will choose from the standard orders. Perhaps it's because we're a teaching hospital, but I've never had any trouble getting cooperation on the plan. Attendings follow it because they helped develop it, and residents follow it because they like knowing what to do."

Her department is currently launching standard orders that go with the pathway. "The orders now are cumbersome, but they'll be easier once they're on-line," says Totka.

The newest revision of the plan is called "Diabetes Type I — Uncontrolled/DKA" because that's the only diagnosis that will put patients in the hospital today. (See pathway, p. 24.) "There isn't a clinical acute care path for stable, newly diagnosed kids because we don't hospitalize them," says Totka. "Whether patients are in DKA and you already know they have diabetes, or whether they are newly diagnosed and in DKA, the difference lies in what teaching plans you should choose, not what medical care they should receive."

For more information, contact Joan Totka, RN, MSN, CDE, Children's Hospital of Wisconsin, Milwaukee. Telephone: (414) 266-2867. E-mail: jptotka@aol.com. ■

Source: Children's Hospital of Wisconsin, Milwaukee.

Source: Diabetes Treatment Centers of America, Nashville, TN.

Source: Diabetes Treatment Centers of America, Nashville, TN.

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Remotely programmable pump gains clearance

Minimed in Sylmar, CA, has developed an innovative insulin infusion pump that can be programmed to administer or suspend insulin delivery from a remote location. The pump also has the capability to program multiple patient-specific delivery patterns.

The pump includes a low-volume alert, an optional vibrate mode, and a child block feature to restrict programming. The Model 508 received 510(k) clearance from the FDA this past summer. The remote programming capability of the device enables patients to conveniently and discreetly program bolus insulin delivery without accessing the pump. It uses radio frequency telemetry with a small hand-held programmer. The pump stores up to three different basal rates of insulin delivery in its memory. This feature is particularly important to patients whose insulin needs vary due to schedule changes or lifestyle characteristics. The device stores 90 days' worth of data, which may be downloaded to a personal computer to help physicians review their patients' insulin requirements. ▼

New monitor reduces reliance on fingersticks

A new device that could alleviate bothersome fingerstick testing for your adult diabetic patients is under review by the FDA. The GlucoWatch monitor, developed by Cygnus in Redwood City, CA, is worn on the wrist and painlessly measures glucose levels through the skin by iontophoresis — sending tiny electric currents through the skin — even while patients are sleeping. It sounds an alarm if patients' blood sugar hits dangerous levels.

Investigators recently showed the device to be as accurate as invasive serial blood glucose measurements when they enrolled 92 diabetic patients to wear the wrist device for half a day while also performing two fingerstick blood glucose measurements per hour on them.¹ The participants

received varied diet and insulin during the study to produce a wide range of glucose levels. Investigators report that the device accurately tracked blood glucose levels in the range of 40 to 400 mg/dL, and note that the iontophoretic readings lagged behind the fingerstick measurements by 18 minutes. But they add that the frequent, automatic, and noninvasive measurements obtained with the wrist device provide continual access to information about glucose levels.

The FDA says the device sometimes gives erroneous readings. Twenty-five percent of the time, readings can differ from blood tests by about 30%, meaning if the reading is a glucose level of 150, it might really be anywhere from 135 to 165. In addition, it won't measure if the patient's arm becomes too sweaty, and it is less effective at detecting very low glucose than very high levels. Because of the potential for error, patients never should decide to use insulin based on a GlucoWatch monitor measurement without first double-checking with a fingerstick test, FDA advisers and Cygnus agree. To use the prescription-only device, patients slide a thin plastic sensor onto the watch's back each time they strap it on. Small electric currents extract a tiny portion of glucose from fluid in skin cells instead of blood, measuring it every 20 minutes for 12 hours.

Reference

1. Tamada JA, Garg S, Jovanovic L, et al. Noninvasive glucose monitoring comprehensive clinical results. *JAMA* 1999; 282:1,839-1,844. ▼

Inhalable insulin achieves breakthrough

Inhalable insulin soon may be a reality. Researchers announced at a meeting of the American Association of Pharmaceutical Scientists, held in mid-November in New Orleans, that they had developed a stable, pressurized Metered-Dose Applicator formulation for insulin that can be delivered by a tasteless spray that disperses insulin into the bloodstream through tissues in the mouth.¹ The formulation doesn't need refrigeration like conventional insulin.

The device for buccal delivery of insulin, called pMDA, and the buccal insulin, pMDI, have been tested on rats and administered to three healthy human volunteers so far. Baseline blood glucose levels were established for each volunteer. After the volunteers fasted overnight, each volunteer received one puff of the pMDI into the buccal cavity. Blood glucose levels were monitored during the next five hours to demonstrate the hypoglycemic effect. The investigators report that significant hypoglycemic effects were observed in the human study. The subjects' blood glucose levels decreased sharply in the first 20 minutes after dosing, and the maximum hypoglycemic effect was observed between 100 and 150 minutes post-dosing.

Reference

1. Liu J, Libbey MA, McCoy RE, et al. Feasibility study of buccal delivery of insulin using propellant-driven metered-dose applicators (abstract No. 2200). Presentation delivered at the meeting of the American Association of Pharmaceutical Scientists. New Orleans; Nov. 14-18, 1999. ▼

Nateglinide gaining ground for Type 2

Clinical trial findings reported recently at the annual meeting of the European Association for the Study of Diabetes in Brussels, Belgium, may mean good news for your Type 2 patients. Researchers from Baylor University Medical Center in Dallas reported that the experimental drug nateglinide, made by East Hanover, NJ-based Novartis and currently in Phase III trials, seems to correct a metabolic defect thought to play a role in Type 2 diabetes.

The drug appears to restore the natural pattern of insulin secretion at meal times, when blood glucose levels tend to rise to hazardous spikes. Similar to the action of the sulfonylurea class of drugs, nateglinide works by increasing insulin production, which in turn helps restore blood glucose to normal levels. The investigators pointed out that nateglinide has fewer side effects, such as hypoglycemia, than do the sulfonylureas.

According to the clinical trial report, the major difference between nateglinide and the

sulfonylureas is that the latter promote production of insulin throughout the day, while nateglinide's effects cease as soon as blood glucose returns to normal. This may explain the relative absence of hypoglycemia in patients taking nateglinide.

In a second study, also conducted by the Dallas researchers, the investigators discovered that nateglinide enhances the action of metformin. The combination of nateglinide and metformin "controlled overall glycemia and promises to be an excellent choice for patients with more advanced disease," wrote the investigators. They suggested that early-stage diabetics may often be effectively treated with nateglinide alone.

Edward Horton, MD, of the Joslin Diabetes Center in Boston, reported at the meeting that nateglinide has long-term benefits, as well. Horton studied the drug's effects in 1,400 Type 2 diabetics tracked over a six-month period, and nateglinide reduced post-meal glucose spikes and reduced levels of glycosylated hemoglobin A_{1c}. ▼

HMO enrollment may cut diabetes hospitalizations

A dramatic decline in hospitalizations in Pennsylvania for short-term problems related to diabetes may be attributable to HMOs, states a recent report.

Hospitalizations dropped 17% between 1995 and 1998, possibly because HMO enrollments increased during that time, the state's Health Care Cost Containment Council reported in December. There were 9.9 admissions per 10,000 residents for short-term diabetes problems in 1995 and 8.2 admissions per 10,000 in 1998. During that same period, HMO enrollment increased by 2.4 million.

According to a statement by **Carolyn F. Scanlan**, president and CEO of Pennsylvania's Hospital & Healthsystem Association, it is unclear whether plans provided preventive care that reduced diabetes complications, but "what the findings do indicate is that, as various components of the health care delivery system work together to address a community health issue, we begin to see results." ■



How to measure the value of case management

Process, financial, satisfaction measures crucial

By **Patrice Spath**, ART
Brown-Spath & Associates
Forest Grove, OR

In today's health care environment, all programs must prove their value to the organization and its patients. Hospital case management programs are no different. Case managers are being asked to substantiate the positive impact of their services in three areas: clinical outcomes, financial benefits, and customer satisfaction. Because case managers are part of the health care team, it is sometimes difficult to distinguish their unique contribution to the patient care experience. It is even harder to quantify this contribution.

The value of a case management program can be evaluated from two perspectives: tangible benefits and intangible benefits. Tangible benefits may include:

- reduction in service cycle time through more coordinated scheduling;
- reduction in quality defects (known as "rework" in manufacturing) with its attendant readmissions, prolonged length of stay, repeat surgery, and other costs of correction;
- improvement in the clinician's ability to make choices concerning interventions based on cost-effectiveness and cost utility information provided by the case manager;
- improvement in management's ability to assess the causes of adverse outcomes and inefficient processes and the degree to which treatments, devices, procedures, and interventions are comparatively effective;
- elimination of health care delivery service redundancies by improving labor efficiency through enhanced information at the point of care;
- reduction in the use of more expensive interventions to achieve the same expected outcome;
- redesign of inefficient processes to optimize personnel, space, and materials;
- enhancement of clinical quality through continuous management of process variation,

feedback, group process, ownership, and delivery system coordination;

- workplace harmony and professional satisfaction through better communication and collaboration, which result in less personnel and professional turnover.

Intangible benefits may include:

- improvement in accuracy of bid proposals for managed care contracts through more accurate assessments of the cost of providing services;
- improvement in reporting of credible outcome data;
- improvement in patient and provider service and satisfaction, leading to new and retained customers and contracts;
- flexibility in the design of patient services to encompass customer demands.

To measure the impact of their services effectively, case managers must start with a clear understanding of the needs of all stakeholders. What are the physicians' expectations? the bedside nurses' expectations? the financial officer's expectations? and so forth. Once the stakeholders' expectations are clear, case management performance measures can be defined to determine whether or not expectations are being met.

Two types of measures should be used by the case management department to determine if their services are valuable to stakeholders: process measures and outcome measures. Process measures can be used to evaluate rework, compliance with departmental standards, productivity, services delivered, service cycle time, and budget variances. It may be argued that case management processes are merely the means for achieving results, and performance measures should focus on outcomes, not work tasks. However, without the collection of data about case management tasks that stakeholders view as important, it's not possible to determine if these customers' expectations are being met. It is important, however, to limit measurement to those processes considered to be significant. Otherwise, you'll end up with lots of unimportant data.

Some case management departments measure patients' clinical outcomes to judge the effectiveness of case manager interventions. It is idealistic, however, to assume good clinical outcomes are directly related to the work of the case manager alone. A direct causal relationship between case management interventions and

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Source: Brown-Spath Associates, Forest Grove, OR.

patient outcomes — for example, improved functional status — has not been well-established. Outcomes can be influenced by many factors, including the patient, the environment, the doctor, and the disease process itself. Until a linkage between specific patient outcomes and case management interventions can be clearly demonstrated through scientific research, it may be best to use surrogate measures. Surrogate measures are used to evaluate case management tasks that are presumed to partially influence patient outcome results.

For example, if early social work intervention is thought to be a critical factor in reducing social complications following the patient's discharge, the following surrogate process measure could be used: **Percentage of patients receiving their first social work service within 24 hours of hospital admission.**



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Financial outcomes have traditionally been used to measure the effectiveness of case management service. Financial outcome measures assess indicators such as:

- costs associated with health care delivery and services;
- utilization of diagnostic tests and procedures;
- days of discharge delay;
- average length of hospital stay;
- hospital readmission rates.

Just like clinical patient outcomes, the factors that influence financial results are very complex. It is unlikely that case management interventions can be given full credit for reducing hospital and continuum of care costs. Factors such as

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new treatment modalities, increased patient education, increased number of out-of-hospital treatment alternatives, evidence-based practice guidelines, disease management, and so on have all had an impact on reducing total health care expenditures. It may be best to develop surrogate measures of case management tasks that are presumed to partially influence financial outcomes. For example, if preadmission discharge planning is felt to be a critical factor in reducing the number of unnecessary postoperative days of care, the following surrogate case management measure could be used: **Percentage of elective surgery patients who receive preadmission discharge planning.**

Evaluating stakeholders' satisfaction with case management services is important. Targeted survey tools can be used to judge patients' satisfaction with various aspects of case management services, such as:

- adequacy of discharge plan explanations;
- level of involvement of patients/families in decision making;
- timeliness of response to case management-related questions and problems.

Other customers of the case management department (physicians, nurses, referral and contract providers, and so on) also can be surveyed to determine their level of satisfaction with relevant case management services. Accompanying this article is a survey instrument that could be used to gather case management satisfaction data from home health agencies. (See **survey instrument, p. 30.**)

To prove the value of case management programs, case managers must be able to demonstrate that case management interventions are effective and accomplish their goals. Gather data to show the stakeholders that case management reduces future problems — for example, rehospitalizations, overuse of services, miscommunications between caregivers, and so on — and significantly improves patient and provider satisfaction.

Remember that measurement is not an end in itself, but a tool for more effective management. Performance measures by themselves will produce few benefits. Better case management performance can only come from improving the processes. Use the results of your performance measurement system to effect positive change in case management systems and processes to ensure that case managers continue to add value to the patient care experience.

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*Editor's note: Patrice Spath has written a new 135-page book titled **How to Measure and Improve Case Management Performance**, published by **Brown-Spath and Associates**. Cost: \$35. To order, call (503) 357-9185, or order on the Internet at www.brownspace.com. ■*

CE objectives

After reading each issue of *Hospital Case Management*, the nurse will be able to do the following:

- identify particular clinical, administrative, or regulatory issues related to the profession of case management;
- describe how those issues affect patients, case managers, hospitals, or the health care industry in general;
- cite practical solutions to problems associated with the issue, based on independent recommendations from clinicians at individual institutions or other authorities. ■