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Collaborative program works to improve high-risk prenatal care

Medicaid plans seek healthier moms and babies

Collaboration among four competing HMOs? They said it could never happen in Philadelphia until a nonprofit HMO, Health Partners, envisioned a cooperative approach to prenatal care for high-risk women on Medicaid.

After months of coalition building, beginning in 1997, Health Partners and its three for-profit competitors joined with numerous community service and government groups to form Healthier Babies Inc., a collaborative project run by "stakeholder governance." It is the first population-based effort to improve birth outcomes for women on Medicaid.

For providers in the five-county region

Key Points

- Four competing HMOs collaborated in the first population-based effort to improve birth outcomes for high-risk women on Medicaid.
- A universal encounter form simplified the administrative processes.
- Physicians maintain a 90% reporting rate on prenatal encounter data.
- The project's growing database promises to yield insights on effective prenatal interventions with women involved in cocaine use, as well as other high-risk lifestyles and behaviors.

(See related article, "Standard clinical forms: The pitfalls and benefits," p. 65.)

Continued from cover page

COMING IN FUTURE ISSUES

- Lessons in patient safety from a renowned health care system
- Do your metrics tell the truth? A primer
- How one ICU learned some of its patients belonged at home
- Ambulatory surgery make over: A project profile
- The promise of community care networks for hard core health issues

In next month's *QI/TQM*

Data? We're drowning in them, but what can we trust? Technology has removed the mystery from generating medians, graphs, and trend reports. But how much can you believe? More than a few industry leaders observe that good data remain elusive. You'll hear from them next month in *QI/TQM's* cover story. Experts will share tips on how to find credible data and how to ensure that the numbers generated by your projects tell the truth.

surrounding Philadelphia, the project brings a measure of relief from paperwork. A universal prenatal encounter form (UPEF) replaces several sets of forms.

For expectant moms, the UPEF means better care. "The Medicaid population changes plans frequently," explains **Deneen Vojta**, MD, senior vice president for medical affairs and chief medical officer for Health Partners. "So when you have the same form from provider to provider, you have more continuity." **(See sample UPEFs, inserted in this issue.)**

The benefit of simplified paperwork reaches beyond continuity of care. It attacks administrative costs, the last remaining area of waste in the health care industry, according to Vojta.

"Cost savings on the medical side of the health care industry are over; hospitalization rates are about as low as they're going to go. The savings have to come from the administrative side," she says. And in that area, opportunities abound. Like their counterparts from coast to coast, each of the Philadelphia Medicaid HMOs issued its own forms and provider numbers.

"If you simplify the administrative processes, as we have with Healthier Babies, you save money and you take better care of patients. I think that what we've done here is what you'll see nationally in five years. While the forms may differ, the principles of simplification and collaboration will be similar to Healthier Babies," adds Vojta.

The story of a successful coalition

The project's story highlights a rule of successful coalition building: Hurry and draw every interest group in early, and slow down to identify what it takes to earn their long-term loyalty and contributions, explains **Richard Baron**, MD, FACP, president and CEO of Health Partners and champion for the project.

Healthier Babies' data collection model and growing database are promising prototypes for improving the care of high-risk patient populations. "We still have to develop therapies around these data," he notes. "But first, we had to get people to focus on using the forms. There is one clear message from our experience: If you want to get providers to give you high rates of good clinical information, a regional effort is your only hope. Our 90% completion rate for the encounter forms is significant. We would not have that if we asked providers to fill out nine or 10 different forms."

Katherine Lupton, operations manager for Healthier Babies, points out that the UPEF replaces three other forms, including the HMOs' prenatal risk-assessment tools. "We did not want to make the providers' task harder; we wanted to streamline it as much as possible."

Another provider perk is the elimination of several phone calls. "These forms go to Healthier Babies pretty much in real time, and that expedites the authorization of special services if issues are listed like homelessness or drug use, for example."

Competitive habits persist like weeds — a few bruised egos and hours of tough negotiation lie in the wake of this partnership. As the only nonprofit of four HMOs, Health Partners applied for and administered the $500,000 in grants from the Robert Wood Johnson Foundation and the Center for Healthcare Strategies, both in Princeton, NJ.

> *"I wish we had tried to work with [members of] the organized provider community earlier. When we got to them, they were mad at us." Healthier Babies now has ties with both ACOG and local physician groups.*

The grants, coupled with the vision of the Health Partners leadership, sustained the project through the building period of roughly one year. Confidentiality and control issues loomed as deal breakers throughout. Grant monies ran out in May 1998; the Healthier Babies board held its first meeting in July 1998.

The coalition builders' foremost challenges, according to Baron, were:

1. Base of operations.

From the beginning, Health Partners expressed its willingness to spin off the data collection, processing, and housing piece to an outside entity. The choice was the Philadelphia Health Management Corporation (PHMC), a local nonprofit umbrella group providing management support for a number of small nonprofit agencies.

2. Confidentiality of the data.

Complex legal regulations surround collection, management, and use of information about HIV carriers and drug and alcohol users. Healthier Babies covered the concerns by including representatives of the consumer advocacy and legal communities.

3. Provider buy-in.

Clinicians are leery of forms and hold little warmth toward HMOs. The work simplification offered by the UPEF won them over.

4. Funding for data collection and processing activities after the grant period.

The HMOs were the logical source, and eventually they consented after seeing the organizational benefits awaiting them.

5. History of failure by similar cooperative efforts.

The power of the naysayers carried formidable force, Baron acknowledges. He credits the Health Partners representatives for prevailing, fired by an interest not in ownership, but in what cooperation could mean for clinicians and patients. Baron wielded enormous influence as former chief medical officer with Health Partners and as bearer of extensive knowledge of Pennsylvania's Medicaid program.

Transferable lessons from Healthier Babies

Lupton describes the organizational building blocks that took months to stack into place, without which this collaborative would have joined its failed predecessors:

• **Think expansively as you identify key stakeholders.**

In its present form, the Healthier Babies coalition represents clinical, consumer, health plan, government, advocacy, and legal groups.

• **Build a forum in which to bring the stakeholders together**.

• **Identify common ground for cooperation.**

In the case of the HMOs and providers, it was to improve the health of the vulnerable population of Medicaid women. "Primarily, we started with the chief medical officers of the HMOs, then we infiltrated their organizations, communicating with all the people who would eventually work with us — the claims departments, medical records, and case managers," Lupton says. Tailor your message to show all the players how cooperation can serve their professional and altruistic interests.

• **Forge a contractual arrangement with an outside entity.**

The four HMOs contract with Healthier Babies Inc. for information management, analysis, and reporting to the state Medicaid agency.

• **Secure key stakeholders' agreement on the database contents.**

• **Resolve legal concerns related to the data collection.**

Designate a centralized repository for the database and a governance structure for data ownership, data release, access, confidentiality, and use.

• **Make a connection with professional clinical organizations.**

In this case, it was the American College of Obstetricians and Gynecologists (ACOG) in Washington, DC.

• **Establish compliance procedures for data collection from providers.**

"The data collection and processing runs smoothly because it has simplified the administrative procedures," notes Vojta. On average, UPEFs are submitted and processed within two weeks of completion by the physician's office.

• **Install a formal communication process to reach everyone who will be affected, including the media.**

Press conferences are an effective way to convey your key message to the community and your target population.

Baron believes the Healthier Babies information management model could work for asthma populations as well as high-risk pregnancy.

Speaking from experience

An ambitious effort like Healthier Babies could hardly reach its present stature without a few missteps along the way. Baron shares two he believes others could avoid if forewarned:

1. "I wish we had tried to work with [members of] the organized provider community earlier. When we got to them, they were mad at us," he confesses. Healthier Babies now has ties with both ACOG and local physician groups.

2. "We started without a particular clinical improvement activity in mind, like smoking cessation," he notes. While the original encounter forms asked whether a woman smokes, the smoking cessation community explained that they should have asked whether she ever smoked or whether she smoked in the past 30 days. Version 2 UPEFs reflect the change.

Although Healthier Babies has a rich database, "people can ask what difference we have really made because of the project and the data collection. We would have been wiser to ask ourselves what outcomes we really wanted to achieve and to build even one outcome into the research design, like reducing homelessness or cocaine use or pregnancy-induced hypertension. I wish we had thought that through a little more and taken the advice of people who told us to build it in early," he says.

Unprecedented QI opportunities

If a fancy software package had been a top priority for the project planners, any number of commercial vendors could have filled the bill. Instead, they chose PHMC to mastermind the information management component. "They had experience in data collection from homeless and HIV-positive women. They understood that the hard part would be capturing information in the field and getting the providers to turn it in," Baron says. They also could offer a good home for the project and its data, he adds.

A 90% provider reporting rate soundly affirms the wisdom of the planners. "That means that more than 90% of the time, for pregnant women in five Pennsylvania counties [covered by] four Medicaid HMOs, we get a clinical report of that encounter," Baron says. As of March this year, that amounts to data from 156,000 encounters with 29,000 pregnant women.

As it turns out, the database package is no clunker. In one to two mouse clicks, you can sort out low birth weight babies, or cocaine-using or teen moms. "But that's good news and bad news," Baron cautions. While the data enable the HMOs to easily identify high-risk mothers, "there's not a lot of literature about what you can do to improve birth outcomes for this population."

By the same token, there's a good chance that the Healthier Babies findings might answer some of those questions. "We've never had the opportunity to look at a population of 315 cocaine-using pregnant women in this city," explains Baron. The next task is to develop care practices based on findings from the data.

Currently, Healthier Babies is analyzing 1999 birth certificate data together with 1998 prenatal risk data. Baron says that if prenatal cocaine use

Need More Information?

For more on collaborative initiatives among Medicaid HMOs, contact:

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proves to have as big an impact on low birth weight as people think, they can identify and target cocaine-using pregnant women for intensive interventions, as opposed to the typical referrals to drug treatment programs.

The following year, they could measure the impact.

"Having these data is like [being] a kid with a new microscope," he reflects. "We have the information, but we don't know yet what it means. It's like the first X-rays — they had the pictures but they didn't know what they meant." ■

Standard clinical forms: The pitfalls and benefits

One of the key components to the success of a collaborative approach to better care for Philadelphia's high-risk Medicaid recipients is the universal prenatal encounter form (UPEF). As you might imagine, designing the form was a mammoth goal, especially when four competing HMOs were the principle players. However, the initiative, Healthier Babies Inc., pulled it off.

Project champion **Richard Baron**, MD, FACP, explains how the collaborative works. He is chief executive officer and president of Health Partners, the only nonprofit HMO member of the coalition. **(To learn more about the coalition-building venture and emerging findings from the Healthier Babies' database, see this month's cover story.)**

Baron and his colleagues approached the daunting task of designing a common prenatal encounter form with a few preconceptions. Some proved useful, while others did not:

• **Collect social risk factors data.** The presence of behaviors such as alcohol or tobacco use automatically triggers supplemental interventions.

• **Limit the form to one page — a "big mistake!"** To cover intake data as well as follow-up and postpartum visits, UPEF Version 1 came off the press on legal-size sheets. "The doctors hated it because it didn't fit into their files and was hard to photocopy," Baron says. They immediately scrapped it for Version 2, comprised of separate, letter-size intake and follow-up forms. Providers prefer it overwhelmingly to one odd-size piece. Still, he notes, "we left out things we wish we had captured, such as flu immunization, which is now required by Medicaid."

• **Integrate the new form into the existing office practice.** Providers have few objections to the UPEF. It's a clinically useful tool. And, it relieves some of their administrative irritations, provides continuity for patients who switch plans, and fits neatly into their file folders, cabinets, and copy machines.

Early practice changes and policy insights

The rapid information feedback from the UPEFs has expedited medical and lifestyle interventions:

• HMO staff send the names of women with HIV to the pharmacy to confirm that they have current AZT (zidovudine) prescriptions and that the prescriptions are filled on a timely basis. Staff ask the provider to follow up on any questions about adherence to medication regimens.

• The names of high-risk pregnant women are sent to a community project that provides one-way cell phones and transportation enabling homeless or low-income women to stay in touch with their providers.

Even one encounter with a participating HMO automatically connects a pregnant woman to supplemental services if she reports any risk factors, such as domestic abuse, substance use, or homelessness.

However, Healthier Babies cannot reach the 30% of Medicaid-insured women who never seek prenatal services, explains **Deneen Vojta**, MD, senior vice president for medical affairs and chief medical officer for Health Partners. "They are the extremely high-risk population," she says. To address that gap, the Pennsylvania Medicaid office is working to simplify the HMO enrollment process.

Emerging statistics from the Healthier Babies database promise exciting possibilities to providers and Medicaid policy-makers. Already they've corrected one misconception about the service-seeking behaviors of this population.

Administrators used to read low postpartum follow-up rates as failure to obtain care after delivery. But the data reveal that most women elect to visit a family planning clinic instead of an obstetrician. Based on the finding, Medicaid policy-makers could reorganize the maternity care payment system, Vojta explains. One possibility would be to parse out prenatal and postpartum fees to obstetricians and family planning clinics instead of paying global maternity care fees to obstetricians. ■

Integrated outcomes critical to lasting change

Method attracts physician leaders

The hallmark of the integrated outcomes strategy is to engage the practicing physician as the hands-on leader. "This methodology makes it absolutely natural," notes co-designer **Steve Shaha**, PhD, president of the Institute for Integrated Outcomes in Amherst, NY.

Another distinction of the integrated outcomes method is that clinicians choose improvement initiatives based on their feasibility and relevance rather than on directives issued from administrative or finance departments. The technique uses interdisciplinary teams formed around measurable improvement goals. True to his background as a health care criteria designer for the Malcolm Baldrige National Quality Award, Shaha notes that for sustainable gains, the QI process must not favor one type of result to the detriment of another. Bona fide improvements embrace clinical, consumer, and cost outcomes.

The integrated outcomes model was born and raised at Children's Hospital of Buffalo (NY), now an affiliate of Kaleida Health in Buffalo. Since then, the integrated outcomes method has proven itself through replication in other systems. Kaleida embraces a network of five hospitals. The network is affiliated with the School of Medicine and Biomedical Sciences of the State University of New York at Buffalo. About 4,000 academic and private-practice physicians are involved.

The Children's Hospital drives pediatric care improvements for the region. Four years ago, the hospital's quality specialists created the Center for Integrated Outcomes Healthcare (CIOH) as an entity within its larger QI program. **Linda Brodsky**, MD, director of Children's pediatric otolaryngology service was voted into the position of CIOH director.

The consulting group, Institute for Integrated Outcomes, was invited to facilitate the development of physician-led initiatives. QI staff act as consultants on CIOH projects.

According to **Laurie Giza**, director of planning, research, and marketing at the Institute for Integrated Outcomes, CIOH currently has more than 20 initiatives in progress. "One of our biggest assets has been to accept that every department is working with very limited budgets and staff, and to acknowledge that we are stressed and overworked," says Giza, a co-designer of integrated outcomes. Short, superproductive meetings are key to the effectiveness and acceptance of the methodology.

Key Points

Location: Children's Hospital of Buffalo (NY)

Situation: The hospital created a special QI initiative within its existing quality department. The initiative measures improvements through clinical, financial, and satisfaction outcomes for all the stakeholders. The strategy is called "integrated outcomes." Two key elements are clinician-driven improvement goals and hands-on leadership by physicians. In progress at the facility are 20 integrated outcomes initiatives.

Solution: A typical project involves surgery for strabismus (misalignment) of one eye. The findings demonstrate that clinical outcomes are the same for operations on the affected eye as for both eyes. Cost savings and patient satisfaction are higher for the single-eye procedure. Subsequently, surgical practice has changed for strabismus and other procedures.

Integrated outcomes in action

Following a hospitalwide orientation to the principles and processes of the integrated outcomes method, the CIOH executive committee invited physicians to submit one-page QI project proposals. Two stipulations applied:

1. A project would interest the initiator.

2. It would promise potential benefits for patients and the hospital.

Project leaders were told to expect about one hour of extra work per month.

Executive committee members represent these functional areas:

1. research;
2. clinical;
3. administrative;
4. nursing;
5. finance.

Among the pilot projects was the surgical correction of strabismus (crossed or "walled" eyes).

- **Goal:** Determine which of two common

clinical practices produced better results for patients whose conditions were correctable by an operation on one eye:

— surgery on one eye and one muscle;

— surgery on two eyes and two muscles.

• **Team leader:** Practicing strabismus surgeon.

• **Team members:**

— administrative liaison with CQI training and direct reporting relationship to top leadership;

— outside facilitator with data analysis skills;

— outpatient surgery nurse familiar with pre- and postoperative processes, as well as services for patients and their families;

— operating room nurse familiar with surgical and post-surgical care;

— finance department representative;

— medical records representative;

— information services representative;

— anesthesiologist;

— other strabismus surgeons, on occasion;

— ad hoc team members including post-anesthesia care unit nurse and patient complaint/satisfaction representative.

• **Lessons from the pilot phase:**

The wisdom of configuring teams around problem areas rather than individual departments was immediately apparent.

"The rapidity of change is increased because people feed off each others' ideas and individual departments don't get burned out. We have one-hour team meetings. That makes the physicians very interested in participating," says Brodsky, who is also president of the Institute for Integrated Outcomes.

• **Celebratory air of excitement for continuous improvement:**

Semiannual team meetings convene in March and September, always on a Friday from noon to 1:30 p.m. Representatives from 20 teams attend. Four to five teams present 10-minute "show-and-tell" sessions. "It's a better way to disseminate information than dry statistics," states Brodsky, also a co-designer of the integrated outcomes methodology. "When people hear what others are doing, they begin to realize it can help them, too." She notes that this is a particularly effective way to disseminate practice improvements to physicians in community settings.

Teams define their tasks and measure their success according to desired outcomes and supporting data. Each of the project teams has seen positive results in one or all of the outcome areas measured. Here, for example, are details from the strabismus project:

• **Clinical measures:** Degree of eye misalignment and amount of improvement in alignment. Surgery results were the same for one-muscle and two-muscle procedures.

• **Cost measures:** Length of stay (LOS) at three stages (1) preoperative, (2) in the operating room, (3) postoperative; and operating room charges. Outcome was not significantly better for the two-muscle group.

• **Satisfaction measures:** Patient's perception of pain. Outcome was not significantly better for the two-muscle group.

• **Clinical practice changes:** Physicians who relied on two-muscle surgery altered their practice patterns with patients eligible for the one-eye/one-muscle procedure. As a result of continuing collaboration and data collection, lessons learned from the one-eye/one-muscle practice patterns have been applied.

Project expanded to outpatient

Heartened by shorter LOS and higher satisfaction among strabismus patients, the physicians extended their efforts to the whole outpatient surgical area. The results: LOS down 50%, thanks to increased parental involvement in patient monitoring and discharge preparation. Costs are down 35% for outpatient strabismus patients and 12% for all patients. Satisfaction increased among parents, nurses, surgeons, and anesthesiologists. But that's not the end of the story.

Revised anesthesia protocols for all outpatient surgical patients resulted in lower anesthetic drug doses, less vomiting, and other negative effects. The cost savings amounted to nearly $250 per case. When multiplied by the 3,000 cases to which these changes may apply, the savings are estimated at $750,000.

Perhaps the strongest appeal of integrated outcomes for doctors and other clinicians is that clinicians run the show. While there's a great deal of lip service to the principle, it's rare for organizational leaders to entrust a system's financial health to clinicians by authorizing them to improve clinical quality, notes Shaha.

The improvements from integrated outcomes initiatives go beyond outpatient surgery. They include:

• Reduced medication prescribing errors in the hospital's pediatric intensive care units due to a clinical pharmacist's presence at clinical rounds and collaboration on clinical order writing.

• A cultural shift in the operating room that

pleases the hospital staff and physicians. Staff redesigned the hospital's surgical function, including the staffing patterns, informatics, and all aspects of supply ordering and handling. "Our approach is generalizable, but it is not cookie cutter medicine," states Brodsky.

A character sketch of integrated outcomes

In principle, the methodology is adaptable enough to thrive in nearly any organization. But don't underestimate its simplicity. Once it takes hold, it will change the entire system. Here are its basic features:

• **Leadership believes in and endorses the team approach to success.** When individuals create solutions in a vacuum, there is a predictable degree of resistance and lack of success in implementation.

• **Outcomes are the sole measure of success.** Three types of outcomes command equal importance: Clinical, financial, and satisfaction for all the stakeholders.

• **Administrative buy-in and investment are complete and tangible.** This includes time off from other duties by key personnel and resources to engage outside experts at strategic points.

• **Initiatives percolate from the front line.** People who do the jobs can best gauge which changes will work, and they own the energy to refine the processes. Shaha points out that practicing physicians make the most successful leaders for clinical projects — but that doesn't necessarily apply for nonclinical.

• **Offshoot initiatives evolve from early successes.** Integrated outcomes methodology runs counter to common assumptions that change should start in areas of high volumes, costs, or sticky clinical challenges. When the frontline workers prioritize objectives for change, even if they start small, the areas of greatest concern at the system level invariably arise as offshoot initiatives. At that point, staff are primed to address them with confidence and experience. ■

Need More Information?

For more on the integrated outcomes method, contact:

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Staff docs sometimes make the best QI leaders

Looking for the right physician to head up your latest quality initiative? **Keith Moore** suggests that you check out the rank-and-file medical staff instead of going automatically to the big title holders.

"Those organizations that have strong informal leaders in the medical staff are fortunate indeed," says Moore, president of McManis Associates, a Denver-based firm specializing in research and management consulting for health care groups. "We see clear differences in their commitment and follow-through on quality issues," he adds.

Organizations with strong informal physician leaders are generally more dedicated to clinical quality, and often, informal physician leadership proves more effective than formal leadership, Moore observes.

He adds that sound strategic planning must, by definition, combine business and clinical outcomes. The latest research on organizational quality commitments points to an emerging dichotomy, says Moore, whose latest book, *Beyond Managed Care* (Jossey-Bass), is due out this month. "We used to think of health care systems as lined up along a continuum," he notes. On one end were those in which physicians participated in planning toward clinical quality as well as business objectives. On the other were systems totally dominated by business interests.

"Today, we're seeing more of a divide into two discrete camps," he states. "Those systems that have some physician leadership around quality issues, whether formal or informal, continue to push on them very dramatically and continue to make some progress. Another group of systems is truly going back to the basics and is de-emphasizing quality further."

While a back-to-basics approach might bail an organization out of budget woes in the short term, it's folly in the long run, observes Moore. With the advent of assertive customers and information systems that tell us more about what's going on, he continues, "I have to believe we're going to see more consumer decisions based on quality than we ever have." **(For a practicing physician's tips on how to cultivate your informal medical leadership, see "How to engage doctors in your QI projects," in *QI/TQM*, February 2000, p. 19.)**

Need More Information?

For more on cultivating effective physician leadership within health care systems, contact:

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(Keith Moore discussed the impact of corporate health benefits buying patterns and consumer choice on health care quality measures in the QI/TQM *Quality Talk, March 2000, p. 34.)* ■

GUEST COLUMN

Assessing outcomes of cardiac procedures

Study identifies age as significant factor

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Over the past 20 years of the health care quality evolution, the definition of quality has remained fairly stable. The Institute of Medicine in Washington, DC, defines quality as "the degree to which health services for individuals and populations increase the likelihood of desired outcomes and are consistent with current professional knowledge."[1]

Comprehensive quality programs generally target the key areas of clinical, professional, and service quality including patient satisfaction. Yet, the need for innovative quality programs has changed over the past several years, moving toward evidence-based validation of results.

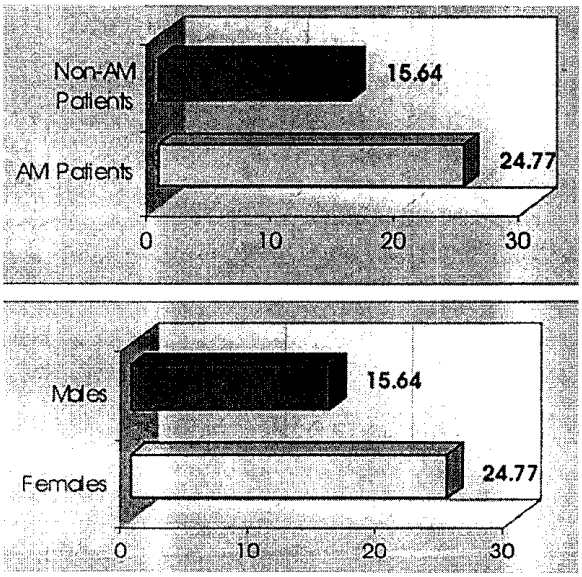
One reason for this phenomenon is shorter lengths of stay resulting from stringent managed care cost containment programs. Patients now are discharged far sooner, and usually before the full benefits of a procedure can be ascertained. Emphasis has shifted to managing the patient after discharge.

A second factor is the Internet, where patients can access sophisticated clinical information. Increasingly, these better-informed patients take a more active role in selecting health care options and request data demonstrating long-term benefits of their treatments. Both of these forces drive the need for developing databases that focus on monitoring the functional status of patients over time and linking these results with clinical data. Such a tool will provide a thorough evaluation of the value of care rendered.

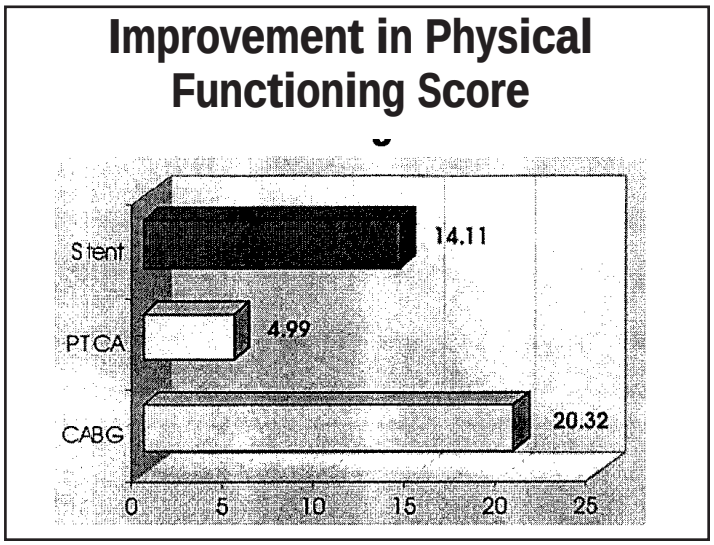
This is the new paradigm: "The true value of health care can be determined only by a systematic examination of patient outcomes."[2] The following statements were made by physicians engaged in a February 1999 Internet discussion on the need for outcomes measurements:

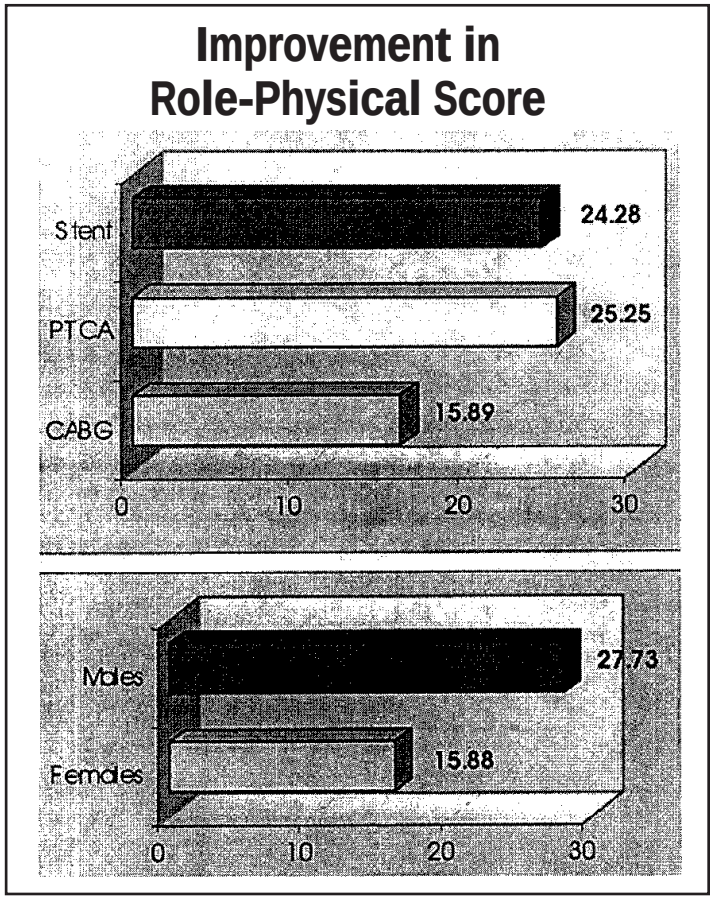
- "No one knows the outcomes or value of many of the listed procedures in the elderly, but

Improvement in Bodily Pain Score



Source for all graphs in this story: GE Medical Systems, Englewood, CO.





they are being done at ever-increasing rates. Until payers can demand outcomes data including pre- and post-procedure functional status and pay based on this, we will not substantially improve our performance."

• "The lack of data to demonstrate patient or population benefit is striking."

• "Without data that [demonstrate that] the health status of over 85-year-[old] females has been improved by the rise in hip surgery, one believes that the rise in surgery has other causes — not relating to health status or medical conditions."

LBA Consulting Group developed CORE (Clinical Outcomes Review and Evaluation)[3] in 1997 to track the outcomes of certain cardiac and orthopedic patients. Because such data are only of benefit if collected by a standardized, statistically valid psychometric tool, the 36-Item Short Form[4] developed out of the Medical Outcomes Study was used. The survey instrument contains 36 questions, which then are rolled up into eight scales. Published benchmarks are available for all scales.

Scales include:

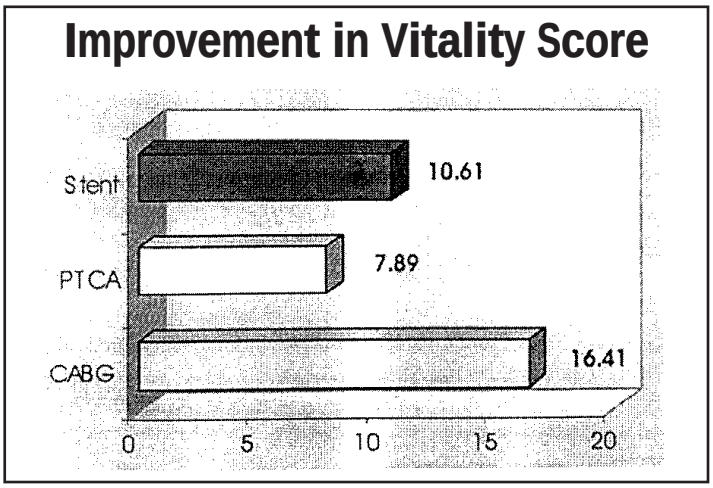
1. Role-physical
2. Bodily pain
3. General health
4. Physical functioning
5. Vitality
6. Social functioning
7. Mental health
8. Role-emotional

Prior to admission, client hospitals distribute a modified 36-Item Short Form survey instrument, to which several additional questions pertaining to a cardiac population have been appended. Patients are informed that their physician and the hospital wish to track their progress after discharge and request their cooperation in completing and returning similar surveys throughout the coming year.

Follow-up surveys are printed, coded, and mailed by LBA at three-, six-, and 12-month intervals. The information is then combined with the UB92 Discharge Summary data. Comparative reports are periodically distributed to client hospitals. This provides an analysis of hospital performance, as well as performance against other hospitals and national benchmarks.

The purpose of our study was to assess the longitudinal functional status of three distinct invasive cardiology patient populations: patients undergoing PTCA (percutaneous transluminal coronary angioplasty) with stent (a wire mesh implant, designed to hold the artery open), patients undergoing PTCA without stent, and patients undergoing CABG (coronary artery bypass graft). These patient populations were selected based on their similar clinical presentations on admission.[5] This study concentrates on the improvements of functional status three months following treatment.

The data set used for this study consisted of 974 patients from 11 hospitals with discharge dates ranging from July 22, 1997 through Sept. 30,



1999 (468 CABG, 91 PTCA, and 416 stent). These patients completed both the initial and the three-month follow-up questionnaire, and the hospital was able to provide clinical data via a legitimate UB92 record. The clinical data were used to determine age, sex, the procedure performed, and whether or not the patient had experienced acute myocardial infarction (AMI).

Surprisingly, the three treatment groups had similar scores upon admission. In fact, the only scale showing a statistically significant difference among the groups was physical functioning, where the CABG patients had significantly lower scores. Age and/or sex showed statistically significant effects for all scales, with females and older patients scoring lower. As one example, initial physical functioning scores for females averaged 42.7, vs. 58.4 for males, adjusted for other factors. **(See graphs, pp. 69-71. All data shown in the graphs have been statistically adjusted for the influences of other factors.)**

The differences between males and females were surprisingly large, raising the question, once again, of whether females are treated as aggressively as males.[6,7]

Differences among the three treatment groups are also worth noting. The CABG patients, in general, started out with lower scores than the PTCA or stent patients. Their improvement after treatment, however, resulted in generally higher scores after three months.

The notable exception was role-physical, in which the CABG patients showed much less improvement, perhaps because of the longer recovery time for CABG surgery. The questions for this measure relate to whether the patient had difficulty in performing activities or had to cut down the amount of time spent on activities, so the longer rehabilitation period could easily have an effect. The results at six months will be interesting.

For two other measures, physical functioning and vitality, the CABG patients showed much greater improvement. They started out with lower scores but had higher scores after three months.

Several findings were of interest because of the lack of statistical significance. Presence of AMI was only significant in the improvement of the bodily pain metric, and age was not significantly associated with improvement in any of the measures. Apparently, the benefits of these procedures span all age groups.

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3. The CORE program (formerly known as Response Plus) was originally developed as a joint venture between two HCIA divisions: LBA Consulting Group and HCIA Response

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TECH WATCH

The Bridge Medication Management System enables nurses to catch potential patient injuries from drug therapies. The barcode scan system interacts with bedside computers and a radio-wave-controlled communication system wired to the facility's information system. It eliminates many manual steps in the typical 60-some step medication dispensing and delivering process.

Functions

- Nurses barcode-scan the drug to be administered with patient identification bracelet and their employee badge.
- System verifies "five rights," (1) patient, (2) drug, (3) dose, (4) time, (5) route of administration. It checks for safe dosing levels and alerts nurses to potential hazards with look-alike, sound-alike medications.
- System records time of administration and clinician's identification.

Features

- System transmits drug regimen changes to bedside nurses.
- It automates manual drug record keeping.
- System generates reports on each data set mentioned in the above section, as well as near misses and errors.
- Reports serve as tools for patient safety improvement.
- It's compatible with Windows-based systems, as well as most network technologies and pharmacy software programs.

Feedback from alpha test site clinician

Trudy Day, RN, MSN, GNP, nurse manager of the Orthopedics and Neurosciences Unit at Northern Michigan Hospital in Petoskey and her staff have worked with the Bridge Medication Management System since December 1998. The system does slow the nurses down, but that's a good thing, she observes. "Many times, nurses are passing meds while doing other things. Now I can see the near misses, and it's alarming how many there are!" Potential users should know that not all drugs have barcodes. Staff choose the uncoded medication from a pick list on the monitor. At this writing, three more hospital systems are installing the system.

Costs

Bridge Medication Management System software license: $2.00/day per device. Hardware and network installation, extra.

Information

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office. In February 1999, after a corporate spinoff, the LBA Consulting Group took over all CORE operations. The LBA Consulting Group has recently been acquired by GE Medical Systems. For more information, contact: GE Medical Systems, Englewood, CO. Telephone: (303) 740-7779.

4. Sherbourne CD, McHorney CA, Ware JE, et al. The MOS 36-item Short Form Survey, III: Tests of data quality, scaling assumptions, and reliability across diverse patient groups. *Med Care* 1994; 32(1):40-66.

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[Editor's note: For additional information or updates on this research, contact Harold Taylor, GE Medical Systems, 6300 S. Syracuse Way, Suite 630, Englewood, CO 80111. Telephone: (303) 714-9532. E-mail: harold.taylor@med.ge.com. For further insights into managing cardiac conditions as well as other chronic care concerns of the elderly, see QI/TQM's *two-part series "DM (disease management) and chronic care, in the January and February 2000 issues.]* ■