Pittsburgh Regional Healthcare Initiative

Reprinted from *PRHI Executive Summary*, February 2004

Naida Grunden, editor

The story of Pittsburgh's Cardiac Registry:

and what it promises for SWPA's heart patients

"[The surgeons of the Northern New England (NNE) Cardiovascular Disease Study Group], instead of hiding their data on variation in outcomes and retreating into competitive behaviors, these dedicated professionals chose to work together to understand why they differed and to learn from each other, through visiting, reflection, and exchange, how they might improve the entire process of cardiovascular surgery."

—Don Berwick, MD, Director of the Institute for Healthcare Improvement

In the early 1990s, individual cardiac surgeons in New Hampshire received a federal HCFA "report card," telling them whether their patients' mortality rates following coronary artery bypass graft (CABG) surgery were at, above, or below expectations. Surgeons could only react to the report.

Several prominent, conscientious cardiac surgeons conferred about the data. The surgeons represented six hospitals widely spaced throughout New England, and not thought to be "competitors." Unable to believe the data, they challenged it openly.

Eventually, however, they came to understand that the variations in outcomes were real. They decided to work together to improve patient outcomes.

But what, exactly, should they do? How ever accurate, the data were old and not actionable. No enlightenment could be gleaned without the ability to look at the *why* of the data, in a proactive way.

Northern New England and the birth of the cardiac registry

The New England surgeons hit upon an idea: why not create a registry of CABG surgery data that could track not only patient outcomes, but the processes of care that led to them. Over time, the physicians of the Northern New England Cardiovascular Study Group (NNE) gained enough information to publish its findings in peer-reviewed journals.

Four simple, inexpensive care processes seem to improve patient outcomes. They are:

1. **Encourage pre-operative aspirin use**. Make sure patients remain on low-dose aspirin to within five days of surgery.

2. **Adequately control heart rate, through use of beta blockers**. Patients with heart rates below 80 beats per minute demonstrate decreased risk of mortality.

3. **Use internal mammary artery, when available**. Use of the saphenous (leg) veins has been common, but results improve when the mammary artery is used.

4. **Avoid hemodilution while patient is on heart bypass pump**. The perfusionist on the cardiac team can help ensure that the patient does not become anemic during surgery.

These simple, low-tech processes cost less than $3 per patient. In NNE hospitals, following them has lowered the in-hospital mortality following CABG surgery *five-fold*.

A Pittsburgh model?

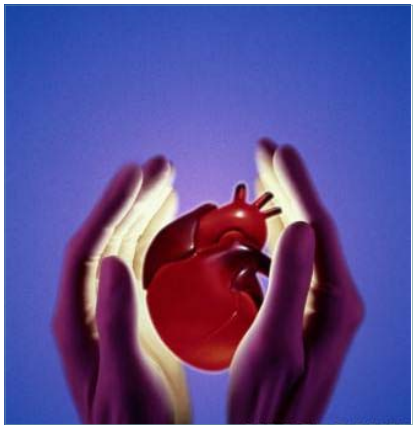
Could Pittsburgh create a regional cardiac registry similar to NNE's? Could they take the journey, described in the opening quote by Don Berwick, from competition to cooperation? By the fall of 1999, several physicians were interested investigating it, under the auspices of the newly formed Pittsburgh Regional Healthcare Initiative (PRHI). Cardiac surgeons and infectious disease specialists from Pittsburgh-area hospitals attended a NNE meeting together, and were inspired.

Participants: Allegheny General Hospital, Dubois Regional Medical Center, Jefferson Hospital, Mercy Hospital of Pittsburgh, St. Clair Hospital, The Medical Center of Beaver, UPMC Passavant, UPMC Presbyterian, UPMC Shadyside, Washington Hospital, West Penn Hospital, Westmoreland Regional

However, the competitive atmosphere in the Pittsburgh market was far more intense than in New England. And the region has 13 cardiac surgery centers, not just 6.

"When we began, if you stood on the roof at West Penn Hospital, you could see five cardiovascular surgery centers within a one-mile radius.," said Dennis Schilling, PharmD, PRHI's Clinical Coordinator. The competition had become so great that the collegial meetings among the region's cardiac surgeons had been suspended.

Then there was the denial. At PRHI's request, the Pennsylvania Health Care Cost Containment Council (PHC4) prepared a report on CABG outcomes in the Pittsburgh region. The numbers varied widely throughout the region. Initially, cardiac surgeons and institutions believed that the data were invalid—that their patients were older, sicker or faced more risk factors. The drawback to the PHC4 report was the same as it had been in New Hampshire: the data came without any sort of description about what led to the outcomes.



From competition to collegiality: turning it around

Readmission data in the PHC4 report did provide some excellent learning. A typical hospital in metropolitan Pittsburgh had reason to believe that the rate of readmission following CABG surgery stood at about 5%. After all, that's how many patients were being readmitted to their hospital. However, PHC4 tracks patients across all institutions in the commonwealth—something few states do. The report surprised some by suggesting that, while many people outside the metropolitan area might travel to Pittsburgh for surgery, they would be readmitted to their local hospitals. When those patients were accounted for, readmission rates hovered closer to 20%.

A few dedicated cardiac surgeons dug deeply to validate the data. Once they were able to explain that the data were indeed adjusted for risk, and that the variations and high readmissions occurred independent of case mix, physicians were stunned. They began to realize that, in a profession where they do not control reimbursements, work hours and other business aspects—they have 100% control over the processes of care they employ. Here was an opportunity to perfect the processes of care for one of the most complex surgeries in medicine.

When representatives from NNE came to Pittsburgh in late 2000 to describe the power of a regional cardiac registry, surgeons sat together and listened. At the following meeting in early 2001, when the power failed, the surgeons grabbed flashlights and candles out of enthusiasm to continue learning.

The power of regional learning

"The average cardiac surgeon does about 200 coronary bypasses per year, with eight to 10 readmissions and perhaps four deaths. From that, it's hard to learn how to improve," says Jon Lloyd, MD, PRHI's Medical Advisor. "If they had their choice between looking at 200 cases versus looking at 5000 case (every case in Southwestern Pennsylvania), any scientist would choose the latter. The Cardiac Registry gives surgeons an opportunity to share data and experience, and from that comes an awareness of what works and what doesn't. The Registry also creates an opportunity for surgeons to hold one other accountable to emulate those processes that work best."

Dr. Schilling consulted "eyeball to eyeball" with the NNE as he developed a model to use in Pittsburgh. While NNE has gone on to pursue nine processes of care, PRHI decided to start with the initial four—use of aspirin, adequate beta blockade, use of left internal mammary artery and anemia control during bypass.

To date, 12 of the region's 13 cardiac surgery units have signed on and begun collecting data. The data collection mechanism is designed not to be onerous, but to be part of what they already do. Participating hospitals are or will soon be submitting data confidentially to PRHI for analysis. The system is still getting up and running, but preliminary findings are generating enthusiasm. Attendance at the quarterly PRHI Cardiac Forum, where results are discussed, is increasing.

So far, the data from PRHI's cardiac registry validates what NNE learned about the four simple care processes. Where they are used, mortality and readmissions go down. NNE has expanded to nine target areas: Pittsburgh physicians are eager to expand as well.

"This is not a prescriptive registry," says Dr. Lloyd. "We aren't telling people what to do. It's a descriptive registry, an opportunity to learn."

Any hospital staff member interested in learning more about the PRHI Cardiac Registry is invited to contact Dr. Dennis Schilling, PRHI Clinical Care Coordinator, 412-535-0292, ext 116, or *dschilling@prhi.org*.

PRHI Cardiac Registry

tracks four specific processes of care that have produced significant improvements in patient outcomes following CABG surgery:

- *Use of the internal mammary artery (instead of leg) as a harvest site*
- *Use of pre-operative aspirin*
- *Use of enough beta-blockers so pre-op pulse rate less than 80 beats per minute when surgery starts*
- *Avoidance of anemia due to blood dilution while on the bypass pump (hematocrit not below 21).*

To learn more about PRHI's Cardiac Registry or Cardiac Working Group, contact:

Dr. Dennis Schilling,
PRHI Clinical Coordinator
412-535-0292, ext. 116
dschilling@prhi.org