Quality improvement

A health system’s experiment with 90-day warranty for CABG

When you buy a car, you can get a 5-year warranty. A refrigerator and washer and dryer come with a 1-year guarantee. But if a patient has heart bypass surgery and develops a sternal wound infection, not only is there no guarantee, but the patient’s insurer will probably be charged more for treatment of this bad result.

There are accepted ways to prevent infections and other complications, but they aren’t always followed. With extra reimbursement available to treat complications, some say physicians and hospitals don’t have a financial incentive to improve results.

A Pennsylvania health system is taking a new approach—a 90-day warranty for elective coronary artery bypass surgery (CABG). Under the warranty, called ProvenCare and thought to be the first of its kind, the Geisinger Health System charges a flat fee that covers the surgery and 90 days of follow-up treatment. Geisinger pledges not to charge extra for postop infections or other complications directly related to CABG.

The warranty really is Geisinger’s pledge to offer evidence-based care and stand behind the results, explains Alfred Casale, MD, surgical director of the Geisinger Heart Institute.

Geisinger has identified 40 evidence-based steps that should be part of care for every CABG patient and put a system in place to make sure they are followed for every patient, every time. Examples are using the internal mammary artery, which has been shown to improve outcomes, giving preoperative antibiotics on time, and using beta blockers as recommended (sidebar).

Since the warranty was introduced in February 2006, Geisinger says patients have been less likely to return to intensive care, have spent fewer days in the hospital, and are more likely to be discharged directly to their home rather than a nursing home, according to the May 17 New York Times.

Geisinger has 3 acute care hospitals and about 660 physicians in about 40 offices in 20 counties in eastern and central Pennsylvania. So far, the warranty program applies only to Geisinger’s own insurance plan, which covers about 206,000 people. Eventually, it plans to expand the program to more procedures and attract more insurers.

A ‘dramatic change’

Geisinger’s leaders say the warranty is a “dramatic change” from the usual way care is given and paid for. They point to research showing rates of surgery and other treatments vary widely, depending on where people live and who treats them. Studies have also found that more intensive and expensive care doesn’t necessarily mean better outcomes.

Pennsylvania has documented these variations through its mandatory statewide reporting system. The data shows, for example, that CABG rates vary by more than 100% around the state. In the Wilkes-Barre area, the rate is nearly 8 in 1,000 Medicare enrollees, whereas in the York area, it is 3.5 per 1,000. There’s also a wide variation in CABG outcomes, with mortality ranging from 0.4% to 3.0% in 2004, according to the Pennsylvania Health Care Cost Containment Council.

A new report shows higher payments to hospitals don’t necessarily relate to better CABG outcomes. In fact, 2 of the highest paid hospitals in the Philadelphia area had
higher-than-expected mortality rates. The highest paid hospital received nearly $100,000 on average and the lowest about $20,000. (The report is at www.phc4.org/.) (Geisinger’s mortality and readmission rates are in the expected range. Its average commercial payment for CABG at $28,688 was less than the average of $30,247.)

**Care given under warranty**

The warranty tries to address some of the shortcomings of hospital care by setting up processes to make sure recommended care is carried out reliably.

A key tool is Geisinger’s electronic health record (EHR), which it has had for a decade. The EHR, which extends to many of its physician offices, means “we can thoroughly track how successful we are at providing each step,” Dr Casale says. “We

### Evidence-based steps for CABG

#### Preadmission documentation:
- ACC/AHA indication
- Screening for and consultation regarding IMI (inferior myocardial infarction)/RV (right ventricular) involvement
- Treatment options and patient preference
- Need for warfarin—anterior MI (myocardial infarction) or WMA (wall motion abnormality)
- Current user of clopidogrel or warfarin?
- Screening for stroke risk
- Carotid doppler (if indicated)
- Vascular surgery consultation (if indicated)
- Ejection fraction
- Screening for need to use intra-aortic balloon pump
- Screening using epiaortic echo (as indicated)
- Patient withheld clopidogrel/warfarin for 5 days preop?

#### Operative documentation:
- Patient received correct dosing of beta blocker (preop)
- Correct use of intra-aortic balloon pump (preop ---> postop)
- Preop antibiotics (within 60 min of incision; vancomycin within 120 min)
- Blood cardioplegia (on-pump patients)
- Epiaortic echo of the ascending aorta and peer consult
- Intraoperative hyperglycemia screening
- Correct insulin management (as indicated; per protocol)
- Use of LIMA (left internal mammary artery) for LAD (left anterior descending) grafting

#### Postoperative patient documentation:
- Anteroapical MI within prior 7 days; postop echo
- Monitoring for atrial fibrillation for >48 hrs
- Anticoagulation therapy (as indicated)
- Antibiotics administered (postop for 24-48 hrs)
- Aspirin (6 hrs postop or 24 hours postop)
- Beta blocker (within 24 hours postop)
- Statin administered (postop)
- Surgical debridement and revascularization of any sternal wound infection
- Plastic surgery consult regarding ongoing management of sternal wound
- Tobacco screening and counseling

#### Discharge documentation:
- Referral to cardiac rehab
- Discharge medications (eg, beta blocker)
- Discharge medication: aspirin
- Discharge medication: statin

#### Postdischarge documentation:
- Patient correctly taking beta blocker?
- Patient correctly taking aspirin?
- Patient correctly taking statin?
- Patient correctly administering anticoagulant?
- Did patient resume smoking?
- Patient enrolled in cardiac rehab?

Source: Geisinger Health System, reprinted with permission.
know who performs each task, at what time, and with what level of success. We can intervene quickly and in a focused way.”

Another advantage is that Geisinger employs most of its physicians, making it somewhat easier to persuade them to follow standard protocols.

Geisinger decided to start with CABG, Dr. Casale notes, because there are good evidence-based guidelines, the cardiac surgeons were willing to be involved, and Pennsylvania’s data gives a baseline for hospital performance.

These were the major steps in developing the ProvenCare program.

**Setting up guidelines**

To get started, Geisinger organized a team to adapt the consensus guidelines for CABG from the American Heart Association and American College of Cardiology. The team, which included surgeons, nurses, physician assistants, anesthesia providers, and staff from the clinical effectiveness department, translated the guidelines into 40 verifiable steps with clear definitions. The team then educated all of the surgeons on the steps at all of its sites.

Initially, some physicians objected to what they thought was “cookbook medicine,” Dr. Casale notes. But he says they got on board when they realized that rather than forcing them to deliver care in a certain way, the program “actually provided a reliable structure to aid their decision making,” ensuring important steps weren’t overlooked. Physicians can elect to opt out of a step if they have a documented reason.

**Hard-wiring the process**

A work group was set up to map the 40 steps into the process of care. With the support of an IT team, the work group “hard-wired” the process into the electronic record, order sets, and OR time-outs. The group decided on sources of data for monitoring compliance, who would be accountable for the steps, and what tracking method would be used, notes Karen McKinley, vice president of clinical effectiveness.

As the new process was put in place, she and her team abstracted data as close to the time of care as possible, giving feedback to the QI team and to clinicians who were not compliant.

“If we found the process was not performing as designed, we would quickly redesign that portion of the process, run a small test of change, and incorporate the new changes,” she says. An outcomes analysis was done at 8 and 12 months.

**Setting the package price**

Meanwhile, a reimbursement team set about developing pricing for CABG surgery. They determined there would be a package price for the CABG episode of care, including the surgical preoperative, intraoperative, and postoperative care. The price would also cover smoking cessation counseling for patients, cardiac rehab, and management of all postop complications within 90 days of surgery. The global fee includes a 50% share of the cost of historical readmission rate. Geisinger is protected from outlier or catastrophic events by reinsurance.

Geisinger hopes to expand the program to other insurers and employers. Its executives say outside insurers and employers have indicated Geisinger would need to add 5 to 10 more procedures in its plan before enough employees would be affected to make it worthwhile for them to sign up, according to the *Times*.

Other procedures on the drawing board include total hip replacement, cataract surgery, and coronary angioplasty with stenting.

**Getting patients involved**

As part of the warranty program, participating employers are encouraged to get their employees actively involved in their care. Patients must choose to enroll and agree to be active participants, for example, by complying with their medications, completing cardiac rehabilitation, stopping smoking if applicable, and managing their weight.
Outcomes

Before the program began in February 2006, Geisinger estimates only about 60% of its CABG patients received all of the evidence-based aspects of care. Within 3 months, compliance had improved to 100%, and it remained above 90% through February 2007. In the first 6 months of the program, 30-day outcomes had improved, and the reduction of complications was approaching statistical significance, reported Dr Casale and his colleagues in April at the American Surgical Association conference.

Reference


Key elements of warranty

Care process

The process of care:

• supports patients as active participants in their care
• systematically applies evidence-based care
• relies on electronic health records and decision support tools for collecting data, providing feedback, and analyzing outcomes.

Global payment

• Geisinger will accept a global payment for all related services and follow-up care, including hospital and physician payments (applies only to care by Geisinger providers).
• Geisinger won’t charge for complications related to the procedure that occur within 90 days.

Source: Geisinger Health System.