Hardwiring a process for antibiotics

Hardwiring the process for giving and discontinuing prophylactic antibiotics for surgery helped a university hospital drive up compliance with national guidelines, the July 2008 *Journal of the American College of Surgeons* reports.

Finding education wasn’t enough, the authors developed a process with “hard stops” at key points before and after surgery.

“Gentle education doesn’t do it,” the lead author, Glenn Whitman, MD, FACS, a cardiac surgeon, told *OR Manager*.

“To assure quality, you have to apply a process to make it happen.” The study was conducted at Temple University Hospital in Philadelphia. Dr Whitman is now director of the surgical cardiac care unit at Philadelphia’s Thomas Jefferson University Hospital.

Over 18 months, Temple took steps that led to a more structured process:

**Period 1**
During 2005, surgical chairs were asked to develop an antibiotic protocol for their departments based on national guidelines. A new surgical scheduling form was created with specialty-specific antibiotic prophylaxis in the physician orders. Still, compliance lagged for selection of the appropriate antibiotic (76%) and correct timing (55%).

**Period 2**
In July and August 2006, a policy was adopted mandating that completed scheduling forms with physician orders be available in the preadmission testing area (PAT) before patients would be seen for their preoperative appointments. That ensured that orders for the appropriate antibiotic would be on the chart before the day of surgery. Selection of the appropriate antibiotics rose to 91%, and correct timing improved to 78%—“clearly not good enough,” Dr Whitman says.

**Period 3**
Next, a requirement was added that no patient could leave the preoperative area for the OR without the antibiotic being given according to the standardized orders. Compliance with timing rose but only to 90%.

**Period 4**
In the first half of 2007, the Department of Anesthesia agreed to take responsibility for giving the antibiotic in the OR. Giving the antibiotic was added to the timeout checklist, and timing and choice of antibiotic were documented by the anesthesia provider. Specialty-specific antibiotic protocols were laminated and posted in ORs for use by specialty teams. These measures boosted compliance to 95%. (The results were significant at the p = 0.07 level, a difference that would have been significant had the sample size been larger, the authors note.)

**Stopping antibiotics on time**
Automation helped improve the process for discontinuing antibiotics within 24 hours after surgery, as guidelines recommend.

Despite reminders, residents continued to write orders that said, “Antibiotic IV now and 8 hours x 3 doses.” As a result, the last dose was often given outside the 24 hours.
To hardwire the process, the hospital added a pathway to its computerized physician order entry system titled “prophylactic postoperative antibiotics.” When ordered immediately after the operation, the pathway created an order that automatically limited antibiotic doses to the proper timeframe.

The pathway helped improve compliance from 60% to 86%. But physicians can bypass the pathway, and compliance with this aspect of the guidelines has been difficult to improve, the authors say.

**Stiff measures needed**

Dr Whitman says stiff measures were needed to move the process forward.

“We struggled for 18 months to find what worked,” he says.

“It really required us to hardwire the process to get the attendings to write the antibiotic order 100% of the time. We told them, ‘We will not see your outpatients in PAT unless we have the orders 24 hours in advance. If we don’t have the orders, your patient will be called the night before and asked to reschedule.’

“We thought that was draconian,” he adds. “But as soon as we did it and stuck to our guns, compliance improved.”

Along with that, the PAT unit had to solve the problem of missing faxes, a challenge in a unit that receives hundreds of faxes a day.

“To get compliance with the orders, we had to promise the physicians we would never lose their orders,” Dr Whitman says.

The solution was found in a software application called My Medical File, a move Dr Whitman calls a “Grand Slam home run.”

With the software, surgeons’ offices can fax the forms, which are sent both to the PAT and to an online service that electronically assembles the patient charts. If a form is missing that has been submitted, the staff can go online to retrieve it, preventing lost records or delays on the day of surgery.

That solved the problem of missing paperwork, which has also been a boon for surgical consents.

Another major step was the Department of Anesthesia’s agreement to be responsible for giving the antibiotic in the OR as part of the timeout.

Dr Whitman says he hopes the published study will help others move their process forward.

“The article provides hospitals and ORs with the leverage to put in place processes that might appear immutable, such as being able to say: ‘This study determined that it works best when anesthesia gives the antibiotic during the timeout and writes the time.’

“No one gives the scalpel to the surgeon until the appropriate antibiotic is given.”

**Reference**