New federal safety data enables solutions to reduce infection rates

New CDC initiative enables facilities to pinpoint hot spots and develop solutions

By Elizabeth Whitman | April 15, 2017

After a South Dakota hospital recently ran a standard clinical report through a federal healthcare safety database, it discovered that its patients had a high number of hospital-acquired Clostridium difficile infections.

The hospital then conducted a root-cause analysis that found housekeeping wasn’t thoroughly cleaning rooms after infected patients were discharged. Since then, hospital-acquired C. difficile infections have decreased.

The hospital identified the problem through the Targeted Assessment for Prevention (TAP), a strategy launched by the Centers for Disease Control and Prevention two years ago to reduce infections. It produces reports for hospitals and other healthcare facilities using data they already are required to report to the CDC’s National Healthcare Safety Network. TAP offers them tools to identify possible gaps in infection prevention and implement solutions.
A TAP report can also rank specific units within healthcare facilities by the number of infections above targeted levels.

More than 3,700 acute-care hospitals have run TAP reports since the system launched in January 2015. That’s 84% of the hospitals that report to the National Healthcare Safety Network. The CDC does not track what the hospitals do with that data or what impact these efforts directly have had on reducing rates of hospital-acquired infections.

"You run this report and boom, that's where you can focus your effort," said Nancy McDonald, a program manager for the Great Plains Quality Improvement Network. Her group worked with the CDC to disseminate the TAP strategy to providers in the Dakotas, Kansas and Nebraska. "It's very easy, and it's very targeted."

Amid a proliferation of healthcare quality measures but a dearth of tools that reliably improve quality and patient safety, TAP holds promise for being not just effective, but cost-effective too, given that facilities run reports through the National Healthcare Safety Network at no added cost. Several people working in the hospital sector also described it as promising because reports and feedback can be integrated with other infection-prevention efforts.

In the U.S., healthcare-associated infections rank among the top "devastating and costly illnesses," competing with cancer, heart attack, stroke and diabetes, according to a 2013 study in the Journal of Medical Economics. The authors estimated these infections cost the nation $96 billion to $147 billion a year in medical, nonmedical and indirect costs. They also are a major cause of preventable hospital readmissions, for which Medicare penalizes hospitals.

About 722,000 healthcare-associated infections occurred in acute-care hospitals in 2011, and about 75,000 people with such infections died while hospitalized, according to the CDC.

These infections can develop after surgery or in conjunction with the use of medical devices, such as catheters or ventilators, that haven’t been properly cleaned. They also can be inadvertently spread by providers.

In recent years, the rate of some healthcare-associated infections has dropped. Between 2008 and 2014, central line-associated bloodstream infections, or CLABSI, dropped by half, according to the CDC. Surgical-site infections for abdominal hysterectomies dropped 17% over the same period, and surgical-site infections following colon surgery dropped 2%. The CDC attributed the declines to improved awareness of infections and targeted efforts to prevent them.

Still, hospitals, inpatient rehabilitation facilities, long-term acute-care hospitals and other providers still have room for improvement. For instance, catheter-associated urinary tract infections, or CAUTI, showed no decline between 2009 and 2014. The CDC estimates that at any point, one out of 25 patients has at least one healthcare-associated infection.
The challenge for providers is to determine the incidence, severity and cause of infections within their walls. Are CAUTI prevalent? Which unit of the hospital has the most infections, and why? That's where the TAP system comes in.

**Learning to prioritize**

Hospitals report infections in a variety of categories to the National Healthcare Safety Network. Those in the Inpatient Quality Reporting Program must report cases of common healthcare-acquired infections, providing detailed information about each incident, such as the date and location a catheter was inserted, the characteristics of the patient, procedure codes, lab and diagnostic tests, and outcomes like secondary infections or death.

Using all this information, TAP's three-stage framework targets infections, then assesses them with the goal of identifying process improvements to help prevent them.

When the CDC rolled out TAP reports two years ago, the system generated reports for CAUTI, CLABSI and C. difficile infections to acute-care hospitals. In addition, reports for CAUTI and CLABSI became available to long-term acute-care facilities. And reports for CAUTI were offered to inpatient rehabilitation facilities.

By 2016, facilities had access to assessment tools, developed throughout 2015 through pilot projects with Quality Innovation Network-Quality Improvement Organizations. In March, C. difficile infection reports became available to long-term acute-care and inpatient rehabilitation facilities.

The CDC plans to expand TAP to cover other infections, such as Methicillin-resistant Staphylococcus aureus.

The TAP system uses infection data that hospitals, under the CMS Inpatient Quality Reporting Program, are required to report quarterly to the National Healthcare Safety Network. The system generates reports that show which hospital units have infection rates for CAUTI, CLABSI and C. difficile infections that exceed expected rates.

"Hospitals dump all of this information into the NHSN," McDonald said. "They can go in any time and generate a new data set, and then they can get in and run all sorts of reports."

The reports calculate the cumulative attributable difference (CAD), or the difference between the observed number of infections and a targeted prevention goal, which is based on a national Standardized Infection Ratio. If the CAD measure is positive, the facility or unit needs to reduce the number of infections to meet the goal. In ranking units by CAD, hospitals can see where prevention efforts are needed most.

TAP is unique in its capacity to allow hospitals to target locations with excess infections, said Ronda Sinkowitz-Cochran, a behavioral scientist in the CDC's Division of
Healthcare Quality Promotion. And the CAD measure provides them with concrete goals to drive corrective action.

After pinpointing a unit such as the intensive-care for improvement, the hospital can use TAP’s Facility Assessment Tool to help identify possible safety gaps. Hospital quality leaders then can survey staff and gauge whether best-practice policies are in place and are being followed.

A tool to assess CAUTI, for instance, might ask how frequently ordering providers appropriately document the indications for inserting urinary catheters. From there, the hospital can generate a feedback report to develop a plan to reduce infections. The prevention tool for CAUTI would suggest areas for improvement.

Over the past 18 months, the Wisconsin Hospital Association has been working with its member hospitals to implement the TAP strategy and break down data into actionable components.

The detailed TAP data make it easier for hospitals to understand the source of infections, said Kelly Court, the association’s chief quality officer. The TAP report complements hospitals’ ongoing infection-prevention work and their Plan-Do-Study-Act model for process improvement.

"What hospitals tell us is that the ability to take the tool and drill the data down to the nursing unit level really helped engage bedside nurses at that unit level," Court said.

Growing pains

While TAP has received positive feedback so far, it has kinks that are still being smoothed out. One issue is that for some hospitals, taking advantage of all the data generated by the initial TAP report can be a challenge.

"The question is, what do you do after you've run a TAP report? The assessment and prevention pieces are a little slower on the uptake,” said Katie Coutts-White, a health scientist in the CDC’s Division of Healthcare Quality Promotion. It's one thing for hospitals to identify areas for improvement; it's another to figure out how to achieve quality and process improvement, and then actually implement solutions.

The CDC's assessment and prevention tools have not automatically been easy for front-line providers to understand and use. So the CDC has partnered with Quality Improvement Networks, regional organizations that use data-driven initiatives to improve patient safety and care and spread best practices across areas spanning two to six states.

The QINs have helped the CDC improve the TAP system. They were key in developing the CDC's assessment tools and providing feedback about what providers found relevant, Coutts-White said.
For example, the CDC might send hospitals a feedback chart, stratified by unit and pathogen. Sometimes those charts contained jargon that was unclear, or they highlighted a practice that most nurses never used. The QINs gathered this type of feedback from front-line providers and passed it on to CDC staffers.

"We learned so much from them when we would draft materials and those materials would go out into the field," Sinkowitz-Cochran said. "It was a real lightbulb moment for us. There's theory, and then there's practice."

Other challenges have stemmed from issues with the National Healthcare Safety Network, not TAP itself. Sometimes hospitals have to recreate reports, or they find that the NHSN system is down. The Wisconsin Hospital Association's Court said she expected those obstacles to eventually be resolved.

Despite the enthusiastic feedback about TAP, no one really knows how much impact this CDC initiative has had on healthcare facilities' infection rates. That's partly because the CDC doesn't track what facilities do with the information generated by a TAP report. But it's also because TAP is integrated with so many other initiatives in infection control.

Individual facilities vary widely in how they implement prevention efforts, Coutts-White noted, but the CDC "looks forward to future sharing of lessons learned in using data for action in (facilities') prevention efforts."

The Great Plains QIN declined to share data about whether and how much infection rates have changed since its hospital members started using TAP. McDonald noted that member hospitals also are working on hand hygiene, safety huddles and multidisciplinary rounds to reduce infections.

"We couldn't attribute it just to the TAP," she said.

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