

Computerized Tool Guides Antimicrobial Use

BY MIRIAM E. TUCKER

FROM THE DECENNIAL INTERNATIONAL CONFERENCE ON HEALTHCARE-ASSOCIATED INFECTIONS 2010

ATLANTA — A computerized antibiotic stewardship system for tigecycline and linezolid led to an overall decrease in prescriptions of both medications and a significant increase in their appropriate use in a 214-bed community hospital.

A physician order entry system with decision support “provides a nonconfrontational, evidence-based system that can be rapidly implemented,” Dr. John Leander Po and his associates said in a poster at the conference.

Previous strategies to reduce unnecessary use of antibiotics have included

prior authorization, prescriber feedback/education, and antibiotic order forms. But little is known about the effectiveness of a computerized interface that is triggered whenever a prescription is entered, requiring input, said Dr. Po and his associates, of Banner Estrella Medical Center, Phoenix.

The onscreen system used in this study was designed to limit utilization of tigecycline and linezolid outside of Food and Drug Administration–approved indications. The FDA has approved the drugs for treatment of patients infected with a multidrug-resistant organism with no other options, for those at risk of penicillin or vancomycin anaphylaxis with no other options, or as second-line therapy for pneumonia, urinary

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Major Finding: After implementation of a computerized antibiotic stewardship system, the rate of appropriate prescribing rose from 8% to 92% for tigecycline and from 19% to 91% for linezolid.

Data Source: A study conducted during two 4-month periods at a 214-bed hospital.

Disclosures: Dr. Po reported that he had no disclosures.

surgeons, and emergency physicians—when inappropriate use of either antimicrobial occurred.

During the 4 months before the intervention, 36 prescriptions for tigecycline were ordered, compared with 12 during the 4 months with the computerized system in place.

The proportion of appropriate orders rose significantly, from 8% (3) to 92% (11). Examples of inappropriate use in the preintervention phase included for empiric postoperative prophylaxis; for gastroenteritis; when a single, narrow-spectrum antibiotic was indicated (i.e., vancomycin); and in a patient without penicillin allergy.

During the intervention, the one inappropriate tigecycline prescription was for a postcolectomy patient with fever and negative blood cultures and no evidence of penicillin allergy.

Similarly, total linezolid prescriptions fell from 168 to 3 with the computerized system, and the proportion of appropriate orders also increased significantly, from 19% to 91%. Inappropriate linezolid use prior to the intervention included empiric therapy for skin and soft tissue infection (SSTI) and initial therapy for methicillin-resistant *Staphylococcus aureus* bacteremia and endocarditis. After the intervention, inappropriate use included empiric SSTI therapy, initial therapy for osteomyelitis, and vancomycin-resistant urinary tract infection with a negative urinalysis, Dr. Po and his associates reported.

The computerized system used in this study could serve as a model to reduce inappropriate prescribing of other antimicrobial agents, they commented. ■

tract infection, and staphylococcal infection. The interface also delivered recommendations for alternative antibiotics, with hyperlinks to evidence-based articles.

Antimicrobial use was monitored, and direct feedback was delivered to the prescriber—primarily hospitalists,

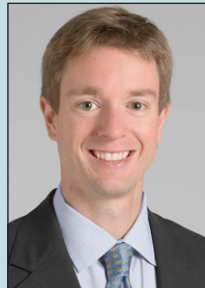
Getting to the Root Cause of Inappropriate Prescribing

MY TAKE

The study by Dr. Po and his associates offers several insights that are relevant to hospitalists. Clearly, the findings speak to the need for improvement in antimicrobial stewardship. We’re doing better than we have in the past, but we still need to think before we prescribe. The system used in this study is a simple method designed to catch us if we don’t.

A system that walks the user through a clear algorithm can not only steer us toward evidence-based best practice but also provide education at the point of care. Yes, we all know about appropriate antimicrobial prescribing, but there is tremendous

variation around the country. Better standardization of these practices could lead to improved care and resource utilization.



The literature supports the use of decision-support systems, particularly for busy clinicians who are working in high-volume institutions. Sometimes we get overwhelmed, and these computerized systems can help us opt into

the best standard of care. That’s also why checklists have received so much attention lately. They use a similar approach and have been shown to improve outcomes.

However, the idea that pop-up alerts are the answer to everything

comes with a price. After a while, too many alerts can lead to “alert fatigue,” and you stop paying attention. Just as we need to adopt more judicious use of our medications, technology needs to be applied judiciously as well.

Downstream alerts are a useful safety-net solution that can help reduce practice deviations. But it is always important to understand and investigate the root cause of why deviations occur in the first place. It’s important for clinicians to step back, figure out why this is happening, and address it at the outset.

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Central Line–Associated Infection Rate Lower Than Predicted

BY DIANA MAHONEY

The overall number of central line–associated bloodstream infections during the first half of 2009 in states with legislative mandates to report such infections was 18% lower than predicted based on national estimates from the previous 3 years.

That finding emerged from a health care–associated infections (HAIs) summary report issued by the Centers for Disease Control and Prevention that includes overall national data on central line–associated bloodstream infections (CLABSIs) and, for the first time, state-specific data from health care facilities in states that mandate CLABSI reporting to the CDC’s National Healthcare Safety Network, according to Dr. Don Wright, deputy assistant secretary for healthcare quality in the Department of Health and

VITALS

Major Finding: Central line–associated bloodstream infections were reduced by 18% nationwide in 2009.

Data Source: CDC health care–associated infection summary data report of national and state specific infections.

Disclosures: None was reported.

Human Services’ Office of Public Health and Science.

The report also compares national and state data from January to June 2009 with national data from 2006 to 2008 using standardized infection ratio (SIR) calculations.

The report is a “benchmark for progress” on the national goals of the HHS Action Plan to Prevent Healthcare-Associated Infections (www.hhs.gov/ophs/initiatives/hai), HHS Secretary Kathleen Sebelius said in a statement. “On a state level, this report can serve as a baseline from which we can assess the impact of state-based HAI prevention programs, including those funded by the 2009

American Reinvestment and Recovery Act,” she added.

According to the report, in the 17 states that, as of June 30, 2009, had mandated the reporting of CLABSIs to their state health departments, 1,538 health care facilities reported 4,615 CLABSIs from January to June 2009—nearly 1,000 fewer than the 5,619 that were predicted.

Eleven of the 17 states had an SIR significantly less than the nominal value 1.0 (representing the number of expected infections), while only 2 had SIRs that were significantly higher than 1.0, said Dr. Arjun Srinivasan, associate director for the CDC’s Healthcare-Associated Infection

Prevention Program. In nearly all of the states with mandated reporting, at least 25% of health care facilities reported no CLABSIs, the report noted.

Although the initial results are encouraging and represent early progress in the comprehensive strategy to reduce, prevent, and ultimately eliminate HAIs outlined in the HHS Action Plan, the current report “is only the first step,” Dr. Srinivasan said, noting that the “real tests” will be every 6 months, with the release of updated reports that allow comparisons of state-specific progress over time.

Although the summary report uses an SIR of 1.0 to indicate the predicted number of CLABSIs, “1.0 is not our ultimate goal. The ratio can be reduced much further,” Dr. Srinivasan said, noting that most CLABSIs are preventable. The 18% national reduction ob-

served thus far reflects a broader implementation of infection control guidelines, enhanced tracking and measurement, and the combined efforts of clinicians, state health departments, federal agencies, professional organizations, and consumer advocates to enhance prevention efforts, “but more still has to be done” to meet the goal of a 50% reduction by 2013 outlined in the action plan, he said.

The Association for Professionals in Infection Control and Epidemiology (APIC) said in a statement that it was encouraged by the report’s findings. “Many of our member facilities have seen that central line–associated bloodstream infections can be reduced to zero, and that in many instances ‘zero’ can be maintained,” the APIC said. ■

The CDC report is found at www.cdc.gov/hai/statesummary.html.