may lead to different or even conflicting conclusions about the rates of MRSA infections. We appreciate the efforts of David and colleagues to quantify the total burden of MRSA in a large consortium of hospitals; however, we believe that their use of administrative data lacks the specificity needed to discern true infection from colonization. Thus, their conclusions cannot be directly compared to those of other investigators who have employed microbiologic or surveillance methods to quantify the specific incidence of MRSA infections.

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Sarah S. Lewis, MD;[1]
Rebekah W. Moehring, MD, MPH;[1]
Deverick J. Anderson, MD, MPH;[1]
Daniel J. Sexton, MD, FIDSA;[1]
Luke F. Chen, MBBS, MPH, CIC, FRACP[1]

Affiliation: 1. Department of Medicine, Division of Infectious Diseases, Duke University Medical Center, Durham, North Carolina; Duke–University of North Carolina Centers for Disease Control and Prevention Epicenter Program, Durham, North Carolina; Duke Program for Infection Prevention and Healthcare Epidemiology, Durham, North Carolina; and Duke Infection Control Outreach Network, Durham, North Carolina.

Address correspondence to Sarah S. Lewis, MD, PO Box 102359, Department of Medicine, Division of Infectious Diseases, Duke University Medical Center, Durham, NC 27710 (sarah.stamps@duke.edu).

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Reply to Lewis et al

To the Editor—We appreciate the response by Lewis et al[1] to our recently published report.[2] We agree that unadjusted administrative and billing data have limitations as a surveillance tool, as we indicated in our report.[3] However, we must disagree with several points these authors raised.

First, our data spanned the years 2003–2008 from a group of academic medical centers and their hospital affiliates throughout the country. Our data included all inpatient methicillin-resistant *Staphylococcus aureus* (MRSA) infections. We did not report on trends after 2008. Lewis and colleagues, in contrast, analyzed data on only invasive MRSA infections at just 18 community hospitals in a region of a single state from 2005 to 2011.

Second, Lewis and colleagues examined only "colonization and invasive infections" in their analyses. As others have shown convincingly,[4] invasive MRSA infections in the United States declined during the period 2005–2010. We do not dispute this trend in our article. Unlike Lewis and colleagues, in our report we included all MRSA infections, both invasive and noninvasive. It is not clear why Lewis and colleagues would propose any direct comparison or anticipate that the 2 data sets would show the same trends.

Third, Lewis and colleagues stated that we did not attempt to account for the "low specificity of administrative data for detecting MRSA infections." It is true that in deriving estimates of adjusted incidence rates of MRSA infections in University Health Systems Consortium (UHC) centers, we accounted only for the decreased sensitivity of the UHC data. We did not include in these estimates the impact of limitations in the specificity of UHC data. However, we did assess the number of "false positives" captured by UHC data in our validation algorithm. Our method was as follows: counting only a single hospital discharge per person per year, we tabulated every MRSA infection from the University of Chicago Medical Center (UCMC) that was reported to the UHC database from July 1, 2004, through June 30, 2005, and for the years 2006 and 2007. For each UHC-coded MRSA-associated hospital discharge, it was determined whether a MRSA infection was also recorded in the UCMC MRSA Surveillance Project. If no MRSA infection was reported for a UHC-coded MRSA-associated hospital discharge in the UCMC MRSA Surveillance Project data, an infectious diseases physician conducted a medical chart review. If the chart review revealed that there was no MRSA infection, the relevant hospital discharge was categorized being "not a MRSA infection." The

results are shown in Figure 1 of our article.[2] Notably, of the MRSA-associated hospital discharges identified in UHC data, the percentage that did not include a MRSA infection decreased from 28% in 2004–2005 to 21% in 2006 and 19% in 2007. Thus, we did not see at our center an increase in the number of false-positive UHC-coded MRSA hospital discharges during 2004–2007, suggesting that the increase that we detected in the burden of MRSA-associated hospital discharges was not due to an increase in miscoding of asymptomatically colonized inpatients as having had MRSA infections, as Lewis and colleagues posit.

Thus, if one accounts for all clinical MRSA infections—both invasive and noninvasive—among hospitalized patients at US academic medical centers during 2003–2008, an increase in the number per 1,000 hospital discharges did occur. Further research is needed to determine changes in this trend after 2008.

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Michael Z. David, MD, PhD;[1,2] Robert S. Daum, MD[2]

Affiliations: 1. Department of Medicine, University of Chicago, Chicago, Illinois; 2. Department of Pediatrics, University of Chicago, Chicago, Illinois.

Address correspondence to Michael Z. David, MD, PhD, Department of Medicine, University of Chicago, 5841 South Maryland Avenue, MC6054, Chicago, IL 60637 (mdavid@medicine.bsd.uchicago.edu).

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A Longitudinal Index of Multidrug-Resistant Organisms at an Academic Medical Center Reveals True Declines in Incidence

To the Editor—Pressure continues to mount on hospitals to report reductions in the incidence of multidrug-resistant organisms (MDROs). The National Safety Healthcare Network is voluntarily collecting data, and various state laws mandate public reporting of the performance of individual institutions. One can only assume that the coming years will see an increase in publicly reported "scorecards" of hospital performance with regard to MDROs, with a strengthening link to reimbursement. The pressure being exerted at the local level will certainly drive down rates; the question we will be left to debate is to what degree the declines represent real improvements, as opposed to underreporting. As we have discussed before,[1] this will be more problematic for the reporting of infections such as ventilator-associated pneumonia or surgical site infections, where imprecise definitions allow some flexibility and the hospital personnel responsible for collecting the data are the same ones responsible for achieving rate reductions and defending their outcomes.

Laboratory-based surveillance, with all its challenges, eliminates layers of human processing of surveillance data and holds the promise of eliminating some forms of bias. We have previously described a longitudinal database of 6 common MDROs at an academic medical center.[2] Since 2000 we have tracked the monthly laboratory-based occurrence of hospital-onset methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant *Enterococcus* (VRE), *Clostridium difficile*, ceftazidime-resistant gram-negative bacilli (CRGN), fluoroquinolone-resistant *Pseudomonas aeruginosa*, and *Stenotrophomonas maltophilia*. The reports are based on clinical results from the medical, surgical, and pediatric intensive care units (ICUs) as well as 7 medical-surgical wards and include those that represent infection as well as colonization. The number of reports occurring more than 48 hours after admission and prior to discharge are divided by the number of patient-days to generate a "resistance index." These data are not subject to any complex definitions and are not collected by infection prevention practitioners or quality improvement specialists. They are not externally reported.

Data collected since the origin of this index in the second half of 2000 through the first half of 2012 are graphically displayed in 6-month intervals in Figure 1. The index represents the occurrence of the 6 organisms divided by the number of patient-days times 1,000 for all 10 hospital locations. It is apparent that the index was relatively flat until the second half of 2007 and then began a precipitous decline over the next 4 years to one-half the previous rate (from 4.2 to 2.0 per 1,000 patient-days). The overall trend is therefore