which there were no further cases. The National Guard Hospital outbreak investigation, case descriptions and definitions, supporting laboratory data, and infection control recommendations were the subject of a detailed paper that was authored by the National Guard Infection Prevention and Control group. The paper was published in the pages of this journal in April 2005.[1]

Last month, another iteration of this outbreak appeared, also in the pages of this journal.[2] Although the authors chose a title that focuses on *B cepacia* bacteremia in immunocompetent children, the content is largely reflective of our paper. The authors also claim to be the first to diagnose the national outbreak. Nowhere is our original article referenced or highlighted. This was unlikely to have been an inadvertent oversight; *American Journal of Infection Control* (AJIC) enjoys wide readership among infection control professionals, and the outbreak was publicized widely. Although it is possible that the authors did not inform AJIC of, nor made any reference to, the original article with the eventual duplication in the journal, it indicates an oversight on the part of article reviewers.

Priority claims are discouraged according to consensus standards that govern editorial policy for biomedical journals.[3-6] One of the basic principles in medical writing is to acknowledge and recognize the work of others, especially when the work addresses the same subject matter, was published well in advance in the same journal, and is indexed in Pubmed. The readers of AJIC reasonably expect to see only high-quality original articles by authors who observe consensus guidelines that, at a minimum, acknowledge other investigators' work. The efforts of our group should have been acknowledged.

Ziad A. Memish, MD, CIC, FRCPC, FACP, FIDSA*
Gwen Stephens, MD, FRCPC
Hanan H. Balkhy, MD, FAAP, CIC
Gwen Cunningham, BN, DPH, CIC
Christine Francis, ART, CIC
Greg Poff, Pharm D
On behalf of the Saudi National Guard Infection Prevention and Control Group
Ziad A. Memish, MD, CIC, FRCPC, FACP, FIDSA
Director, Gulf Cooperation Council States Centre for Infection Control
Infection Prevention & Control Program
King Abdulaziz Medical City
Saudi National Guard Health Affairs
P.O. Box 22490, Riyadh 11426
Kingdom of Saudi Arabia

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The need for international benchmark for health care-associated infections

To the Editor:

We appreciate the comments and questions from Dr. Memish.[1] From a group of 18 limited resources countries, we reported data from 98 intensive care units (ICUs), 60% of which were from Latin America, 20% from Asia, 17% from Europe, and 2% from Africa.[2] We presented their data in a format similar to that of the US National Healthcare Safety Network (NHSN) to facilitate benchmarking of hospitals from limited resources countries with a standard also from limited resources countries, as well and with those of high-income countries, such as the United States. The International Nosocomial Infection Control Consortium (INICC) device-associated infection (DAI) rates in medical surgical ICUs were higher than corresponding Centers for Disease Control and Prevention (CDC)-NHSN rates: central line-associated bloodstream infections (CLAB) rates were 3.7 times higher, ventilator-associated pneumonia rates were 5.5 times higher, and catheter-associated urinary tract infection rates were 1.9 times higher.[2]

INICC members used CDC-National Nosocomial Infection Surveillance (NNIS) system definitions from 1998-2007.[3] In 2008, the INICC began using CDC-NHSN definitions,[4] with 1 exception: The INICC continues to use the definition of clinical sepsis (CSEP) for adult and pediatric patients to categorize CLABs that lack laboratory confirmation to remain consistent with our findings from the past 10+ years. Eliminating CSEP would result in an inaccurate reduction of CLAB rate attributable only to a change in our definition of CLAB.

In limited resources hospitals, blood cultures are not done as frequently as in high-income hospitals, and we believe it is important to capture those likely CLABs where blood cultures were not obtained to provide the most comprehensive estimate of CLABs in our hospitals.

The INICC report provided data of laboratory-confirmed bloodstream infections (LCBI) and data of CSEP; LCBIs represented 67% of all CLABs; and CSEP cases accounted for one third of the overall CLAB category. When including only LCBIs (6.14 CLABs per 1000 central line-days), the data do not differ materially in comparison with NHSN. Many authors have already reported several reasons explaining why CLAB rates are higher in limited resources countries than in high-income countries.

According to data from limited resources countries reported in 28 different peer review manuscripts indexed in ''Pubmed'' from January 1996 to August 2008, the mean rate of CLAB in ICUs was 12.11 (SD 7.28) per 1000 central line-days. This rate is very similar to the CLAB rate reported by the INICC in 2006 (12.5 CLABs per 1000 central line-days)[5] and is 20% above the current INICC rate of 9.2 CLABs per 1000 central line-days.[2] The CLAB rate reported by INICC in 2008 is lower than the rate we published in 2006 and concludes that implementation of successful infection prevention practices, including outcome and process surveillance, reduced the rate. For these reasons, we do not believe that our CLAB rates are higher than NHSN rates merely because we included CSEPs.

The surveillance system developed by the INICC does have limitations: We do not consider the INICC data to represent any individual country in its entirety.[2] The data we collect are from approximately 100 ICUs in 18 limited resources countries, and, thus, we consider our findings as gradually becoming representative of the limited resources world. Moreover, it is probable that the magnitude of CLAB is still underestimated because INICC member hospitals are usually the best of each participating limited resources country, and they have greater resources and commitment to patient safety.

The INICC relies on participating hospitals' laboratories to identify infecting pathogens and delineate bacterial resistance profiles, despite varying levels of laboratory expertise and resource availability. Nevertheless, similar limitations are present in most multiinstitutional surveillance programs or studies. The frequency with which cultures and other diagnostic tests are performed is not within the scope of most infection control programs. When culturing and other laboratory testing are infrequent and suspected infections are treated empirically, the capacity of the surveillance program to detect most DAIs is low.

Our ability to stratify INICC data and generate percentiles is limited because of sample size (approximately 100 ICUs). Therefore, we elect to present the ICU-specific rates for a certain DAI when at least 5 units have contributed data for that DAI type. We also do not report data for several specialized ICU types because these functional distinctions are mainly limited to high-income countries.

As has happened in the past with the CDC-NNIS and as is happening in the present with the CDC-NHSN, we also lack sufficient invested resources to validate DAI rates. To the best of our knowledge, no current national or regional surveillance network validates DAI rates. However, INICC surveillance forms were designed to collect data from *all* patients, both those with and those without DAI.[6] The CDC's NNIS/NHSN program in US hospitals and surveillance systems used in other countries and networks collect data only about patients defined with health care-associated infections.[7,8] By contrast, the INICC forms were specifically designed to continuously prompt the surveillance health care worker to suspect DAI as they provide a generalized and panoramic view of what occurs on a daily basis for *every* patient in the ICU regarding vital signs, exposures to invasive devices, culture taken, culture results, and antibiotic therapies. Such an approach proves especially useful in those cases in which culture results are equivocal, or negative, or no cultures were done, and where DAIs may otherwise be unrecognized. We consider that the accuracy of surveillance is further improved by the methodology applied by the INICC where each reported infection is externally adjudicated. The adjudication process includes the scrutiny of data reported by a hospital team at the INICC on surveillance work sheets for putatively uninfected patients to permit detection of unreported but true DAIs, identified later by INICC headquarters team. When discrepancies are encountered, the hospital team is contacted by the INICC headquarters team to resolve the difference. The judgement of the hospital team is final. Adjudication is a unique feature of the INICC outcome surveillance component and is considered essential for maximizing the accuracy of surveillance data.

It is to be noted, however, that most DAIs both in the CDC NNIS/NHSN system and in the INICC are based on positive cultures, and we cannot ascertain whether the 2 surveillance systems differ materially in terms of sensitivity to detect DAIs, with the possible exceptions of ventilator-associated pneumonia or CSEP. It is necessary to consider the INICC's limitations concerning data reporting in such endeavors. It is key to be noted that no current surveillance network is validating their DAI rates.

Regional infection control networks, such as the Gulf Cooperation Council, contribute a great deal to the knowledge and improved practices of the participants.[1] The INICC includes hospitals of countries and regions defined by the World Bank as limited resources countries but has not included hospitals of high-income countries such as Saudi Arabia, the Sultanate of Oman, the State of Qatar, the United Arab Emirates, and the State of Kuwait, and we would

expect to see differences in infection rates comparing them with INICC ones.

We believe that the availability of regional and international benchmarking data from high-income countries as well as limited resources countries will better enable health care workers and researchers to have more accurate and realistic comparisons. The impact of health care-associated infections in limited resources facilities is severely underestimated; it is a global health problem that requires greatly improved scientific information including surveillance data stratified by case mix, income, and budget of the hospital and country.

Victor D. Rosenthal, MD, CIC, MSc
Bernal Medical Center, chairman of Department of Infectious Diseases,
Infection Control and Hospital Epidemiology.
Medical College of Buenos Aires, chairman of the Postgraduate Course of Infection Control and Hospital Epidemiology.
International Nosocomial Infection Control Consortium (INICC), founder and chairman.
Lavalleja 305, Floor 9, Apt B, Buenos Aires, ZIP 1414, Argentina

E-mail: victor_rosenthal@inicc.org
http://www.INICC.org

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