sustainable care and development and nosocomial infection management. The government and the director of the hospital should emphasize the role of rational design of the wards and hospital layout and balance the costs and benefits in prevention of infection.

- The hospital information system (HIS) enables the control of infection by regulating all of the operational aspects, such as medical, administrative, financial, and legal issues and the corresponding services. The HIS is the essential technologic backup of the environment and infrastructure in a modernized hospital system. Information sources related to nosocomial infection may be enriched using the HIS and enhance the ability of health care professionals. The HIS facilitates organizations in nosocomial infection management, official documentation, and ensures data security.
- Evidence-based medicine (EBM) is intended to optimize decision-making by emphasizing the use of evidence from well-designed research studies. According to the theory of EBM, the strongest evidence based on meta-analyses, systematic reviews, and randomized controlled trials yields strong recommendations. Combined with the data of epidemiologic survey and analysis, EBM may provide useful strategies to improve nosocomial infection management. However, the inadequacy of clinical application of EBM in nosocomial infection management in China needs to be addressed.
- A no-pay policy by the government and medical insurance organizations must be implemented rigorously for items of nosocomial infection that are not covered by medical insurance. This policy will encourage awareness of prevention and control measures that reduce the incidence of hospital infection.

The quality of infection control is an important indicator balancing quality of management and medical administration. During the early period of the severe acute respiratory syndrome epidemic in 2002, the nosocomial infection rate of medical staff reportedly exceeded 10% because of inadequate disease knowledge. However, this rate does not represent all the data because there were several hospitals or wards with a zero infection rate among the medical staff during the outbreak. The discrepancy is associated with different attitudes toward infection. Overall, nosocomial infection management in China and worldwide has a long way to go.

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Conflicts of Interest: None to report.

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http://dx.doi.org/10.1016/j.ajic.2016.01.039

Serratia marcescens bacteremia cases: A pseudo-outbreak experience

To the Editor:

Serratia marcescens has become an important cause of nosocomial infections over the last 2 decades.[1] These bacteria can survive on inanimate surfaces and 2% chlorhexidine solutions for months[2,3] or in medications, and they can subsequently cause outbreaks.[4,5] Although *S marcescens* strains are usually reported to be a cause of outbreaks, especially in neonatal intensive care units (ICUs),[6,7] there are also several reports about these strains causing pseudo-outbreaks.[8,9] A pseudo-outbreak is defined as the recovery of the same organism from the cultures of patients who are not infected or colonized with the organism.[9] Such pseudo-outbreaks increase laboratory costs and may lead to unnecessary treatment. Leaving the source of contamination undetermined may also eventually cause nosocomial infections.

During a 35-day period, 22 *S marcescens* strains were isolated from 20 patients (19 blood cultures, 2 tracheal aspirates, and 1 urine sample). After isolating the first 4 isolates from blood cultures, the laboratory informed Hospital Infection Control Committee. Throughout the environmental investigation, the number of isolates reached 22 before the source was determined. These patients were hospitalized in 2 different ICUs. Nearly all of the examined patients (19/20) had a history of admittance to the emergency department (ED) on the same day or 1 day before hospitalization in the ICUs, and some of the patients were transferred to the ED via a common ambulance delivery system. All of the invasive procedures performed on the patients were also examined. Most of the *S marcescens* instances were isolated from the active surveillance cultures that were taken when the patients entered the ICUs. In addition to these factors, the patients did not have any signs and symptoms compatible with clinical infection. This situation was therefore considered a

pseudo-outbreak. Various environmental cultures, including patient beds, ventilators, door handles, sinks, liquid hand soaps, soap dispensers, disinfectants, and other medical equipment from both the ED and ICUs, were performed to identify the source of the contamination. Hand cultures from health care workers were also performed. *S marcescens* strains were isolated from surfaces of the blood collection tubes, which were kept in the common storage area of the ICUs. It was observed that nurses were taking blood samples from patients to perform blood tests by first placing the sample into a blood collection tube and then transferring the sample to the blood culture tubes without changing the needle of the syringe. These strains had the same aspartate aminotransferase and pulsed-field gel electrophoresis patterns as the pseudo-outbreak strains. The contaminated tubes were discarded, routine cleaning and disinfection procedures were performed, and culture collection procedures were reviewed with ICU personnel. No additional cases have been observed after these procedures.

Pseudo-outbreaks should be investigated in hospitals similarly to true outbreaks because they are time-consuming, costly, and may cause unnecessary treatment.[10] This pseudo-outbreak caused by *S marcescens* indicates that some serious precautions should be applied to terminate an outbreak or pseudo-outbreak. Implementing strict infection control measures, identifying the source of the pathogen, and educating health care workers are the cornerstones of this investigation. Because these pathogens cannot be eradicated from hospital environments, infection control measures and active surveillance cultures will be needed to prevent infections. We would like to emphasize the role of *S marcescens* in pseudo-outbreaks and the importance of surveillance procedures and educating the hospital staff.

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Conflicts of Interest: None to report.

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http://dx.doi.org/10.1016/j.ajic.2016.01.029

Injury rates from peripheral catheters with or without safety devices in a Brazilian public hospital

To the Editor:

Several studies have indicated a reduction in percutaneous exposure after the introduction of safety-engineered devices (SEDs).[1-4] Even though Brazilian laws mandate the use of SEDs in health services, there are still barriers to its adherence, such as high costs and lack of knowledge of health workers.[3]