

# Surveillance of health care - associated infections around the world

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Surveillance of health care-associated infections (HCAI) is a cornerstone of infection control activities in hospitals. However, very few low and middle income countries have national surveillance systems for HCAI. This may be mainly due to infrastructure problems hampering the collection of data. On the other hand, the few available data suggest that the risk of HCAI is significantly higher in developing countries. Therefore, the introduction of HCAI surveillance could lead to much higher reduction rates as has been achieved in high income countries and should be promoted.

That is why it is very welcome that this issue of IJIC concentrates on surveillance data from hospitals in low and middle income countries on three continents.

The issue starts by an excellent overview about the various methods and requirements for surveillance in low and middle resource countries by Nizam Damani. It discusses the challenges in establishing an effective

surveillance program and gives practical advice how to overcome the problems.

It follows an article by Elizabeth Anne Scicluna with recommendations for reading the studies. It reminds us that before believing the data of a study, we should have a critical look to the method section. Only if the methods of the study are appropriate can we believe the data presented. The article provides some basic elements for critical appraisal of medical literature and hopefully inspires further reading about this topic.

Two articles describe the occurrence of surgical site infections in African hospitals. Nwankwo *et al.* determined the incidence and risk factors for surgical site infections (SSI) over three-year period in a tertiary health institution in Nigeria. All patients who underwent surgery in surgical, gynecology, maternity and pediatric wards were enrolled, and CDC definitions were used for identifying SSI. The overall SSI rate in this

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group of 2880 patients was 20.3%, which is, of course, very high. But in the multivariate regression analysis, the same significant risk factors were identified as everywhere on the world: diabetes, obesity, anemia, duration of operation and a high number of persons in the operating room.

The other African article is by Khartoum Teaching Hospital in Sudan. The authors (Elbur *et al.*) included a total of 1387 patients during a seven-month period. In this study, the overall SSI rate was 9%. The highest SSI rate was found for 578 caesarean section procedures with an overall SSI rate of 40.5%. Multivariate logistic regression analysis confirmed a high ASA score as significant risk factor. Additionally, laparoscopic technique was associated with high infection rates, but the number of laparoscopic procedures was very small.

The article by Szilágyi *et al.* is a report from Hungary, where healthcare professionals have meanwhile established a very advanced web-based surveillance system for HCAI with components for SSI and adult and neonatal ICUs. A total of 68 hospitals participated in the surgical component of the surveillance system in the five-year period from 2005 to 2009 and 21 different surgical procedures types were observed. Up to 39 hospitals participated in the ICU component in the same period. Similar to previous observations from other national surveillance systems, the authors were able to describe a reduction of SSI rates following hip and knee prosthesis and a decrease of central line-associated bloodstream infections (CLBSI).

The effect of surveillance in decreasing HCAI rates was also described in the article by Ng Wai Khuan *et al.* from the United Arab Emirates. After introducing a targeted surveillance program and a hand hygiene improvement program in the ICUs of Mafraq Hospital, hand hygiene compliance rates increased significantly and the CLBSI incidence decreased significantly. In parallel, ventilator-associated pneumonia rates, urinary tract infection rates and the frequency of multidrug resistant organisms (MDRO) also decreased.

Surveillance of MDRO was also the focus of an article by Licker *et al.* in two university hospitals in Timisoara in Romania. The data show a high rate of MDRO in Romania and can be regarded as a starting point for intervention.

I hope the data presented here will encourage other colleagues around the world to established surveillance activities in the their own hospitals, to critically evaluate their data, to give stimulating feedback to physicians and care persons on their wards, to help to introduce appropriate intervention measures and to evaluate if these interventions lead to a real improvement. However, surveillance is only one component of a successful infection control program in many low and middle income countries. In addition, effective guidelines, education, change of behavior and appropriate resources are necessary to decrease the incidence of HCAI and MDRO.