

## Prevention of nosocomial infections in low resource countries

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Dear Editor,

Nosocomial infections are infections acquired during hospital care which are not present neither incubating at the time of admission. Infections occurring more than 48 h after admission are usually considered nosocomial. In other words it is the cross-infection of one patient by another or by doctors, nurses and other hospital staff while in hospital.<sup>1</sup> Nosocomial infections have been observed worldwide affecting both developing nations with inadequate resources and developed nations.<sup>2</sup> Hospital-acquired infections add to functional disability, economic burden and emotional stress for the patient and his/her relatives that can reduce the quality of life.<sup>3,4</sup>

The most frequent nosocomial infections are infections of the surgical wounds, urinary tract infections and lower respiratory tract infections, with their highest incidence being observed in intensive care units and acute surgical/orthopedic wards. Infection acquired in healthcare settings is one of the major cause of morbidity/mortality among hospitalized patients and is a direct indicator of quality of healthcare service delivered especially in low resource countries.<sup>1,2</sup> Many factors such as emergence of antimicrobial resistance, susceptibility of the patients (viz. age, immunocompromised state, underlying disease, invasive diagnostic and therapeutic interventions-parenteral nutrition, biopsies/endoscopic examinations/catheterization, etc.), a prolonged hospital stay, patient care practices, and hospital environment, have predominantly contributed to the rise in the occurrence of nosocomial infections.<sup>1,2,5</sup>

In order to prevent the occurrence of nosocomial infections, onus lies with all stakeholders' i.e. all individuals providing health care services in the hospital, must work as a team to reduce the risk of infection to the patients and the staff. Each hospital should design and implement a work plan to assess and promote good health care; advocate appropriate isolation/sterilization practices; and training and

re-training of the hospital staff in a phase-wise manner.<sup>2</sup> The above mentioned goals can be achieved by constituting a hospital infection control committee with representatives from different departments for multidisciplinary inputs and information sharing. This committee should devise mechanism for proper utilization of scarce resources and also ascertain the roles and responsibilities of different healthcare personnel (viz. hospital management/physician/microbiologist/pharmacist/nursing staff/food handlers/central sterilization department/housekeeping department/laundry department, etc.) in the process of infection control in the hospital. Hospital management must provide sufficient resources to support this program.<sup>1,2</sup>

On a global scale to prevent emergence of nosocomial infections, World Health Organization has launched an Infection Prevention and Control in Healthcare initiative to help low resource countries in reducing dissemination of infections associated with healthcare delivery, by assisting them in the assessment, planning, implementation and evaluation of national infection control policies. The ultimate goal is promotion of health care services which is safe for patients, health care workers, others in the healthcare setting, and to accomplish these goals in a cost-effective manner.<sup>6</sup> Surveillance of nosocomial infections has also been advocated as an important element to plan appropriate steps in different countries.<sup>7</sup>

To conclude, an increased awareness among the healthcare personnel, supplemented with proper implementation of a well-designed plan by active involvement of dedicated healthcare workers will substantially contribute in reducing the incidence of nosocomial infections in low resource countries.

## References

1. Park K. Epidemiology of communicable diseases. In: Park K, ed. Text book of preventive and social medicine. Jabalpur: Banarsidas Bhanot Publ.; 2011. pp 332-335.
2. Girard R, Perraud M, Pruss A, et al. Epidemiology of nosocomial infections. In: Ducel G, Fabry J, Nicolle L, eds. Prevention of hospital-acquired infections: a practical guide. Geneva: WHO ed.; 2002. pp 4-8. Available from: <http://www.who.int/csr/resources/publications/drugresist/en/whocdscreph200212.pdf>

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3. Herwaldt LA, Cullen JJ, Scholz D, et al. A prospective study of outcomes, healthcare resource utilization, and costs associated with postoperative nosocomial infections. *Infect Cont Hosp Ep* 2006;27:1291-8.
4. Rosenthal VD, Guzman S, Migone O, Safdar N. The attributable cost and length of hospital stay because of nosocomial pneumonia in intensive care units in 3 hospitals in Argentina: a prospective, matched analysis. *Am J Infect Control* 2005;33:157-61.
5. Colombo AL, Matta DD, Almeida LPD, Rosas R. Fluconazole susceptibility of Brazilian candida isolates assessed by a disc diffusion method. *Braz J Infect Dis* 2002;6:118-23.
6. WHO. Infection prevention and control in health care. Available from: [http://www.who.int/csr/bioriskreduction/infection\\_control/en/index.html](http://www.who.int/csr/bioriskreduction/infection_control/en/index.html)
7. Lizan-Garcia M, Peyro R, Cortina M, et al. Nosocomial infection surveillance in a surgical intensive care unit in Spain, 1996-2000: a time-trend analysis. *Infect Cont Hosp Ep* 2006;27:54-9.