



## Combating Infections in the ICU: Dual Approach



A combination of strict antimicrobial stewardship and comprehensive infection control measures led to a 10-fold reduction in multi-drug resistant (MDR) *A. baumannii* that had become endemic in a Korean intensive care unit (ICU). The initiative is described in a recent paper in the [Korean Journal of Internal Medicine](#).

Shinhye Cheon, Division of Infectious Diseases, Department of Internal Medicine, Chungnam National University School of Medicine, Daejeon, and colleagues, investigated the effectiveness of antimicrobial stewardship and intensified infection control measures for controlling endemic MDR *A. baumannii* in the 3 medical and surgical ICUs in Chungnam University Hospital in Korea (Cheon et al. 2016). Each ICU is a multi-bed open ward with one isolation bed.

Prior to the intervention, standard procedures included using gowns and gloves when dealing with infected patients, no restrictions on using antibiotics and cleaning using 0.01% sodium hypochlorite once a day.

See Also: [Infection Prevention in the ICU](#)

The infection control strategy comprised antimicrobial stewardship, hospital staff education that focused on when and how to perform hand hygiene, active surveillance cultures, contact precautions, environmental cleaning (increased from once to three times a day) and disinfection enforcement, including an additional worker assigned to perform an extra 2 hours of cleaning per day, as well as hand hygiene promotion. Carbapenems could be prescribed and renewed only with the approval of an infectious disease physician. Isolation using plastic curtains and contact precautions was applied to patients who were colonised or infected with MDR *A. baumannii*.

The outcome was measured as the incidence density rate of hospital-onset MDR *A. baumannii* among patients in the ICUs. Prior to the intervention the isolation rates of MDR *A. baumannii* had increased from 55.4% during January 2012 to 94.1% during March 2013, when the consumption of carbapenems was doubled.

### Results

The incidence density rate of hospital-onset MDR *A. baumannii* decreased from 22.82 cases per 1,000 patient-days to 2.68 cases per 1,000 patient-days after implementation of the intervention. The mean monthly use of carbapenems decreased from  $134.99 \pm 82.26$  defined daily doses per 1,000 patient-days to  $94.85 \pm 50.98$  defined daily doses per 1,000 patient-days. Use of piperacillin/tazobactam and ciprofloxacin increased as these antibiotics were prescribed as alternatives to carbapenems. The study also found no statistical difference in all-cause mortality rates, MDR *A. baumannii*-related deaths and average length of ICU stays before and after the

implementation of strict antimicrobial stewardship.

### **Chlorhexidine Gluconate Bathing**

A meta-analysis published in the *Journal of Critical Care* found that chlorhexidine gluconate bathing reduces healthcare-associated infections in intensive care units, including central line–associated bloodstream infection (CLABSI), methicillin-resistant *Staphylococcus aureus* (MRSA), and vancomycin-resistant *Enterococcus* (VRE) (Kim et al. 2016). In addition a prolonged intervention period and concomitant nasal antibiotic use were associated with lower risks of MRSA acquisition.

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The authors state that although the included studies had multiple heterogeneities in their intervention and surveillance methods, these were only associated with a low to medium risk of bias.

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