

## Prevalence and Risk Factors of CRE Colonization in Long-Term Care Hospitals: A Prospective Study

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### Background

Carbapenem-resistant Enterobacterales (CRE) in long-term care hospitals (LTCH) is increasing. This study aimed to investigate the prevalence and risk factors for CRE colonization among LTCH residents.

### Method

From September 2022 to December 2024, rectal swab specimens were collected from current residents and newly admitted patients at four LTCHs. Samples underwent culture followed by immunochromatographic assay to detect carbapenemase-producing Enterobacterales (CPE). Patients who initially tested negative for CRE underwent weekly follow-up testing, up to a maximum of six times. If CRE was detected, active surveillance cultures were discontinued, and infection control interventions were implemented. A case-control study design was used to identify risk factors, and odds ratios were calculated.

### Results

Among 140 asymptomatic patients, 34 (24.3%) tested positive for CRE, with a total of 35 CRE isolates identified. Of these, 27 (79.4%) were confirmed as CPE. Notably, 70.6% of CRE-positive patients were identified during the first screening. Among patients who initially tested negative, 8.6% (10 out of 116) converted to positive later. Multivariate analysis revealed that recent ICU admission within a year (OR, 2.98; 95% CI, 1.07–8.19;  $P = 0.02$ ), use of invasive devices within a year (OR, 3.85; 95% CI, 1.42–9.75;  $P < 0.01$ ), and antibiotic use within the last three months (OR, 3.51; 95% CI, 1.42–8.86;  $P < 0.01$ ) were significant risk factors for CRE colonization.

### Conclusions

The CRE positivity rate was higher among newly admitted patients compared to current residents. The conversion rate from CRE-negative to CRE-positive status was 8.6%. Active surveillance testing should be considered for high-risk patients upon admission.