Background: Hospital waste water systems are an emerging reservoir for CPE. We aimed to describe the prevalence of CPE in hospital drains in southern Ontario, where patients are rarely colonized by CPE.

Methods: Ten hospital sites in south-central Ontario were included. All rooms occupied by patients with CPE from Oct. 2007 to Oct. 2016 were identified, and swabs were obtained from the drains of hand hygiene sinks, bathroom sinks, and bathtubs in these patient rooms. Swabs were also obtained from the drains of sinks and showers in communal shower room drains (352 sites). Swabs were inoculated into brain heart infusion with 10% Dey-Engley broth at 37°C overnight then subbed to a MacConkey with cefotaxime/MacConkey (CPE) agar with menopenicil bialg. Memopenic resistant Enterobacteriaceae were screened for carbapenemases (then confirmed by PCR). PCR was also performed on the inoculated broth from all samples.

Results: Of the 55 patient room drain isolates, 8 (15%) matched the CPE gene/species combination of a room occupant, 24 (44%) matched the gene only, and 23 (42%) did not match.

Conclusions: Failure to protect drains may result in a persistent CPE reservoir in hospitals. Mismatch between CPE drain and patients may suggest that limited transmission of CPE is occurring in our hospitals. VIM and IMP producing non-Enterobacteriaceae may also be present in our drains. PCR may be more sensitive than culture for the detection of carbapenemases, especially for OXA-48-producing organisms.