

**P2656 Contamination of healthcare worker hands after routine care of patients colonised or infected with *Klebsiella* species or *Escherichia coli*: a preliminary report**

Mireia Puig-Asensio<sup>\*1</sup>, Daniel J. Diekema<sup>1</sup>, Linda Boyken<sup>1</sup>, Gosia S Clore<sup>1</sup>, Jorge L Salinas<sup>1</sup>, Eli Perencevich<sup>1,2</sup>

<sup>1</sup> University of Iowa Carver College of Medicine, <sup>2</sup> Iowa City VA Health Care System

**Background:** Prior studies in healthcare settings have suggested that *Klebsiella* species are more transmissible than *Escherichia coli*. We evaluated if there was a difference in the frequency of contamination on healthcare worker (HCWs) hands after taking care of patients colonized or infected with *Klebsiella* spp. or *E.coli* and whether specific patient care activities increased the risk of contamination.

**Materials/methods:** We completed a prospective cohort study in ICU and non-ICU wards at two tertiary centers. HCW hands (and gloves if worn) were cultured after patient care and before hand hygiene. The nature of interaction between the HCW and the patient and/or the environment were recorded. Contamination occurred when the isolate from HCW hands and the patient had the same species identification by MALDI-TOF MS. Univariate and multivariate analysis, using generalized estimation equations, were used to evaluate risk factors for contamination.

**Results:** We observed 364 HCW-patient interactions from 281 patients: 214 *E.coli*, 128 *Klebsiella* spp., and 22 both species. 104 (28.6%) interactions occurred in the ICU and 27 (7.4%) involved multidrug-resistant bacteria. Chlorhexidine (CHG) bathing compliance was available for 349 interactions; 304 (87.1%) had received at least one CHG bath within the previous 48h. Twenty-six (7.1%; 95%CI, 4.7%-10.3%) interactions resulted in contamination of HCW hands with equal risk between *Klebsiella* spp. and *E.coli* (7% each one). An additional 9 HCWs were contaminated with *Klebsiella* spp. after caring for a patient with *E.coli* and 2 HCWs were contaminated with a *Klebsiella* spp. discordant with patient species. After adjusting for systemic antibiotics, time spent in the room, time from index culture to observation date, and center effect, independent risk factors for contamination were ICU location (OR 2.4; 95%CI, 1.1-5.7) and manipulating the nasogastric tube (OR 7.8; 95%CI, 1.8-33.3). Other care activities with higher odds of contamination were patient bathing (OR 2.2; 95%CI, 0.9-5.6) and toilet assistance (OR 3.7; 95%CI, 0.8-16.7).

**Conclusions:** HCW hands were frequently contaminated with *Klebsiella* spp. or *E.coli* after routine patient care, irrespective of bacterial species and in a setting of high compliance with CHG bathing. Certain high risk patient care activities and ICU location were particularly associated with HCW contamination.