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ePoster Viewing

Assessing and decreasing environmental contamination

**BATH BASINS IN HEALTHCARE SETTINGS FROM EUROPE AND NORTH AMERICA AS COMMON RESERVOIRS FOR MULTI-DRUG RESISTANT ORGANISMS**

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**Objectives:** Hospital-acquired infections (HAIs) are common cause of in-hospital death. The portion of HAIs resulting from multi-drug resistant organisms (MDRO) is rising. HAIs, particularly those caused by MDROs, increase morbidity, mortality and costs. The role of contaminated environmental objects in the patient's immediate surroundings, which serves as reservoir and/or vector for patient-to-patient transmission, is increasingly recognized. The aim of the study was to investigate the role of bath basins as potential reservoirs for pathogens that cause HAIs.

**Methods:** A prospective multicenter, multi-national trial, involving 312 hospitals from 63 different states and provinces in US and Canada, and from hospitals in France and Spain, was conducted between 03/2008 – 11/2013. Local Infection Preventionists randomly cultured basins, using a uniform standardized methodology. At the time of culture, the basins were not visibly contaminated and were considered to be 'clean'. All microbiological processing was conducted by an external central laboratory, blinded to the origin of samples. All bacteriologic processing was conducted according to Clinical and Laboratory Standards Institute criteria.

**Results:** Overall, 3601 basins were sampled, 59 basins from hospitals in Europe and 3,542 basins from North American hospitals. As displayed in the Table, 2,262 (63%) of the basins were contaminated with one or more of the following: vancomycin-resistant *Enterococcus* (VRE), Gram-negative bacilli (GNB), or methicillin-resistant *Staphylococcus aureus* (MRSA). Among the European hospitals, 29 (49%) of the basins from 4 (80%) of the hospitals were contaminated with *bla*<sub>KPC</sub> producing or extended-spectrum  $\beta$ -lactamase producing Enterobacteriaceae, and 26 (44%) of the basins from 4 (80%) of the hospitals were contaminated with non-fermenting GNBs (*Acinetobacter baumannii* or *Pseudomonas aeruginosa*).

**Conclusions:** Hospital basins were frequently contaminated with common nosocomial MDROs. Eliminating environmental reservoirs can improve infection prevention and patient safety and can decrease institutional costs.

Pathogen	No. of positive basins (out of 3542 basins sampled in North America)	No. of positive hospitals (out of 312 hospitals participating in North America)	No. of positive hospitals (out of 5 hospitals participating in Europe)	No. of positive basins (out of 59 basins sampled in Europe)	Total of positive basins (Max of 3,601)	Total of positive hospitals (Max of 317)
Gram negative bacilli	1539 (43.5%)	285 (91%)	37 (63%)	5 (100%)	1576 (44%)	290 (93%)
S. aureus	MSSA 33 (1%)	15 (4.8%)	6 (10.2%)	4 (80%)	39 (1.1%)	19 (6%)
	MRSA 180 (5.1%)	92 (29.5%)	16 (27%)	4 (80%)	196 (5.4%)	96 (30%)
	VSE 78 (2.2%)	8 (2.6%)	-	-	78 (2.2%)	8 (2.6%)
Enterococci	VRE 1265 (36%)	283 (90.7%)	7 (12%)	4 (80%)	1272 (35%)	287 (90.5%)
Candida albicans	-	-	2 (3.4%)	2 (40%)	2 (3.4%)	2 (40%)

