pathogens expressing resistant phenotypes (%R), specifically: MRSA, VRE, CRE, ESBL, CRAsp, and MDR *Pseudomonas,* see Figure.

Figure. National Estimates and Adjusted Trends of % Resistance, by Pathogen

National Estimates and Adjusted* Trends of % Resistance, by Pathogen								
	Methicillin Resistance Among *Staphylococcus aureus*[1]	Vancomycin resistance among *Enterococci*[2]	Carbapenem-resistance among Enterobacteriaceae[3]	ESBL Enterobacteriaceae (ALL)[4]	ESBL Enterobacteriaceae (HO†)[4]	ESBL Enterobacteriaceae (CO‡)[4]	Carbapenem resistance among *Acinetobacter*[5]	MDR among *Pseudomonas*[6]
% R (2012)	53.30%	17.40%	0.70%	8.90%	13.20%	8.30%	36.80%	14.40%
% R (2017)	49.20%	14.60%	0.80%	12.80%	17.10%	12.30%	29.80%	11.30%
Modeled 5-year percent change in %R * (2017 vs 2012)	-9.00% (p<.001)	-20.0% (p<.001)	No significant trend	43.60% (p<.001)	27.30% (p<.001)	49.20% (p<.001)	-16.9% (p=0.03)	-20.2% (p<.001)

*Adjusted for hospital bed size, U.S. census division, urban/rural designation, teaching status, month of discharge, age distributions, and data source
†HO: Hospital-Onset (positive culture on day ≥4)
‡CO: Community-Onset (positive culture on day ≤3)
1 MRSA - % methicillin resistance among Staphylococcus aureus
2 VRE - % vancomycin resistance among Enterococcus spp.
3 CRE - % carbapenem-resistance among Enterobacteriaceae (E. coli, Klebsiella spp., and Enterobacter spp.)
4 ESBL - % extended-spectrum cephalosporin resistance suggestive of extended-spectrum β-lactamase (ESBL)-production in Enterobacteriaceae (with additional estimates based on site of onset)
5 CRAsp - % carbapenem resistance among Acinetobacter spp. (CRAsp),
6 MDR Pseudomonas - % multi-drug resistance among Pseudomonas aeruginosa (MDR Pseudomonas)

Methods. We measured incidence of clinical cultures yielding the bacterial species of interest among hospitalized adults in hospitals submitting data to the Premier Healthcare Database, Cerner Health Facts and BD Insights Research Database from 2012- 2017. Community-onset (CO) cultures were obtained ≤ day 3 of hospitalization; hospital-onset (HO) were obtained ≥ day 4. We determined hospital-specific %R for each species. We generated national estimates using a raking procedure to generate weighted adjustments to match the distribution for all U.S. acute care hospitals based on U.S. census division, bed size, teaching status, and urban/rural designation. We applied a weighted means survey procedure to calculate national estimates for each year. We used weighted multivariable logistic regression adjusting for hospital characteristics to examine trends.

Results. From 2012-2017, the overall number of hospitals contributing data was 890 (over 20% of U.S. hospital hospitalizations annually). National estimates and trends of %R are shown in the Figure. Between 2012-2017, significant annual decreases in %R were observed for MRSA, VRE, CRAsp, and MDR *Pseudomonas.* CRE %R did not change. Overall ESBL %R increased by 44% (CO=49% increase, HO=27% increase).

Conclusion. Reductions in %R were observed among MRSA, VRE, CRAsp, and MDR *Pseudomonas*, suggesting that prevention efforts focused in health care settings are having a disproportionate effect on resistant strains. However, %R remains unacceptably high for all pathogens we studied, and %R among ESBL-producing Enterobacteriaceae has increased, most prominently among CO infections. Continued focus on currently recommended intervention strategies as well as new ones for community onset infections is needed.

Disclosures. **All Authors**: No reported disclosures

917. Persistence of Multidrug-Resistant Organisms during Occupancy Changes in the Nursing Home Setting, and Impact of Patient Hand Hygiene Assistance

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Session: P-43. HAI: Surveillance

Background. We investigated the effect of changes in room occupancy, and patient hand hygiene, on the burden of multidrug-resistant organisms (MDRO) in nursing homes. We assessed: 1/ persistence of MDRO after patients are discharged; and 2/ impact of hand hygiene assistance on colonization and room contamination.

Methods. Prospective cohort study of methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococci (VRE) and ceftazidime, ciprofloxacin or meropenem-resistant gram-negative bacilli (rGNB) in 9 single rooms screened three times a week for 34 weeks (five environmental surfaces, plus nares, groin, and hands of enrolled patients). Relative risk (RR) for patient colonization and room contamination were calculated in patient visits based on: 1/ performance of hand hygiene, and 2/ receiving assistance to perform it.

Results. We collected 4670 swabs over a total of 723 visits. Of 143 patient discharges, 31 times the room was swabbed before another patient was admitted (41 total visits), 48 times the next admitted patient was enrolled and available to be swabbed (295 visits), and 64 times the patient was not enrolled but the environment was sampled (387 total visits) (Figure).

Twenty-four (50%) patients were colonized at least once with an MDRO. Rooms were contaminated at least once with MDRO in 72 cases (64%). MDRO persistence during occupancy changes involving at least one screened patient was observed in 21 of 73 cases (29%). In addition, we detected 2 cases of contamination of unoccupied, terminally cleaned rooms with MDRO recovered also in the previous (MRSA) or the following occupancy (VRE).

In 40 occasions, patients performed hand hygiene with assistance from healthcare personnel, while in 169 occasions they performed hand hygiene by themselves. Requiring assistance was a risk factor for patient colonization (27.5% vs. 12.4% not requiring assistance (RR 2.20, 95% CI 1.16-4.18), and for room contamination (37.5% vs. 18.9%, RR 1.97, 95% CI 1.18-3.27) (Table).

Figure. Example of successive changes in room occupancy.

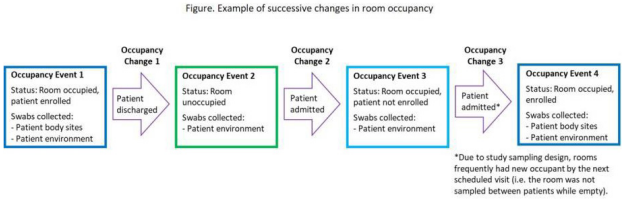

Table. Breakdown of colonization and contamination at each visit according to hand hygiene performance and need for assistance.

Table. Breakdown of colonization and contamination at each visit according to hand hygiene performance and need for assistance.

		Patient colonized			Room contaminated		
		yes	no	RR (95% CI)	yes	no	RR (95% CI)
Performed hand hygiene	yes	32	176	Reference	47	161	Reference
	no	20	67	1.49 (0.91-2.46)	26	61	1.32 (0.88-1.99)
Assisted with hand hygiene	yes	11	29	2.20 (1.16-4.18)	15	25	1.97 (1.18-3.27)
	no	21	147	Reference	32	136	Reference

Conclusion. MDRO can persist during changes in patient occupancy. Patients requiring assistance with hand hygiene experienced a higher MDRO burden. These observations call for further investigation of improved cleaning practices and patient assistance.

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918. Pilot Surveillance for Carbapenemase Gene-positive Organisms Among Hospitalized Solid Organ Transplant Recipients

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Background. Carbapenemase gene-positive organisms (CPOs) are associated with infections with high mortality rates and have the potential to facilitate epidemic spread of carbapenem resistance. Passive reporting to CDC identified CPOs among organ transplant recipients, potentially representing an emerging reservoir for spread. We aimed to determine the prevalence of CPOs in hospital units where solid organ transplant (SOT) recipients receive care in order to inform public health action to prevent transmission.

Methods. All healthcare facilities identified one medical unit where SOT recipients received inpatient care and conducted point prevalence surveys (PPS) of all consenting patients on 1-2 designated calendar days. We used the Cepheid Xpert® Carba-R assay to identify carbapenemase genes (bla_{KPC}, bla_{NDM}, bla_{VIM}, bla_{IMP}, bla_{OXA-48}) from rectal swabs; carbapenemase-positive swabs were cultured for organisms. All laboratory testing was conducted at the Wadsworth Center, part of CDC's Antibiotic Resistance Laboratory Network.

Results. Five participating hospitals performed nine PPS from September 2019 through June 2020. In total, 154 patients were screened and 92 (60%) were SOT recipients (Table). The most common transplanted organs were kidney (44, 48%) and liver (39, 42%). Carbapenemase genes were detected among 5 (5%) SOT recipients, all from a single healthcare facility; 4 (80%) were bla_{KPC} and 1 (20%) was bla_{NDM}. Of the positive specimens cultured, bla_{KPC} was carried by *Enterobacter cloacae* complex (ECC), *Klebsiella pneumoniae*, and *Klebsiella oxytoca* and bla_{NDM} was carried by *K. oxytoca*; bla_{KPC} was carried by both ECC and *K. pneumoniae* in a single individual. For SOT patients with CPOs, the median interval from transplantation to swab collection was 108 days (range: 12 to 323). CPOs were only detected in 1 (2%) of 62 non-transplant patients.