

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



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## INTRODUCTION

- We previously reported high rates of shedding and cross-transmission of multidrug-resistant organisms (MDROs) in nursing homes.
- Transmission between successive patients during room occupancy changes is less understood, as is the role of patient hand hygiene in MDRO burden.

## AIMS

- Do MDROs persist in rooms after patients are discharged?
- Does patient hand hygiene performance and need for assistance impact patient colonization and room contamination?

## METHODS

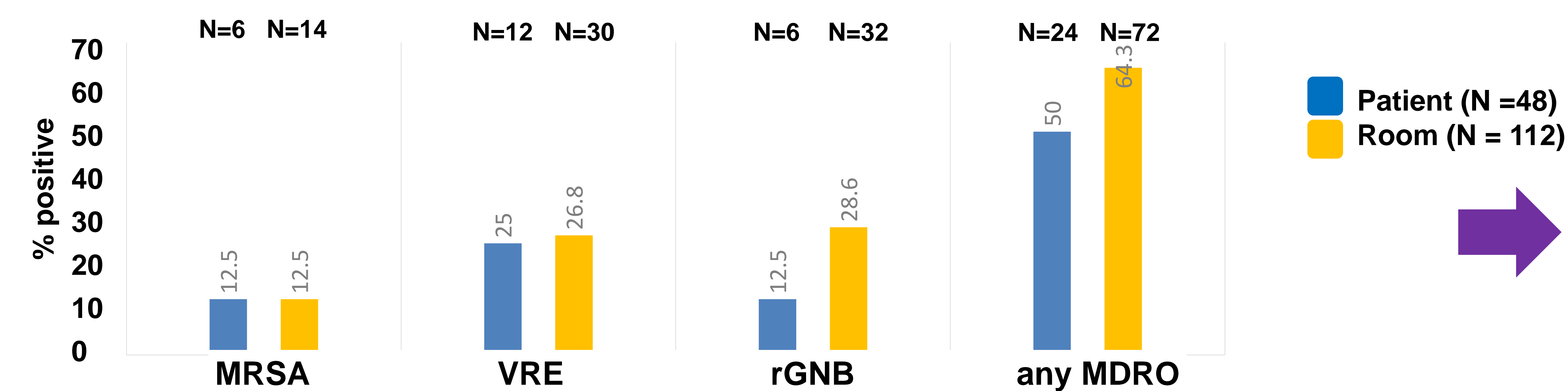
- Pilot prospective cohort study, 9 single rooms screened 3x week for 34 weeks
- Swabs: 5 environmental surfaces, nares, groin, and hands of enrolled patients
- Methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococci (VRE) and ceftazidime, ciprofloxacin or meropenem-resistant gram-negative bacilli (rGNB).
- Relative risk (RR) of patient and room contamination at each visit, based on: 1/ performance of hand hygiene, and 2/ receiving assistance to perform it.

Table 1. Study enrollment.

Status	Events / visits
New patient -Enrolled	48 / 295
-Not enrolled	64 / 387
Empty room	31 / 41

## RESULTS

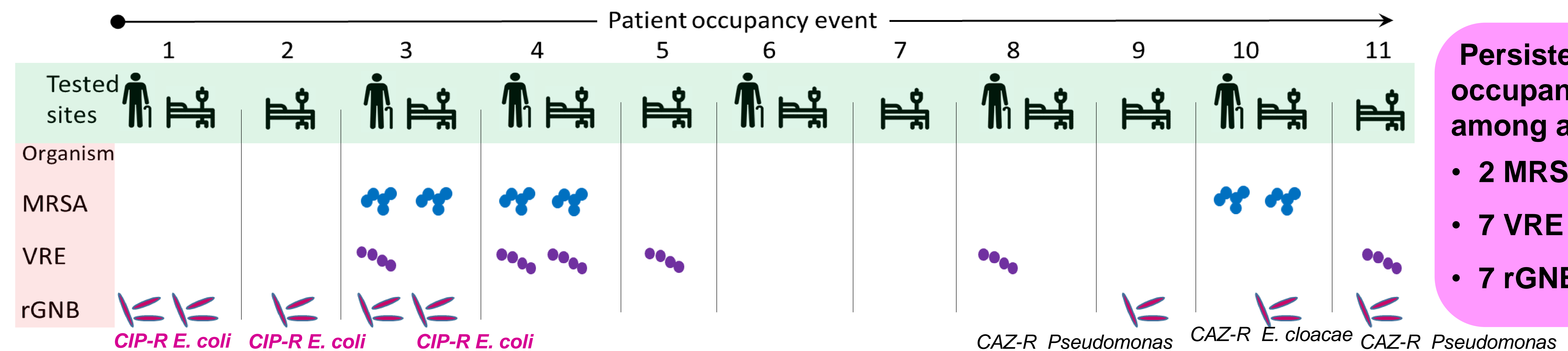
Figure 1. Number and percentage of patients and rooms positive for MDRO at least once during the patient stay.



### Takeaways:

- Room burden of MRSA and VRE closely matches patient burden
- Room burden of rGNB is higher than patient burden within our specific sample set

Figure 2. Example of microbiological findings during occupancy changes in one of the study rooms.



### Persistence through occupancy changes among all 9 rooms:

- 2 MRSA
- 7 VRE
- 7 rGNB

Table 2. Relative risk (RR) of MDRO at each visit according to hand hygiene performance, need for assistance

Hand Hygiene status		Patient colonized (any MDRO) ?			Room contaminated (any MDRO) ?		
		yes	no	RR (95% CI)	yes	no	RR (95% CI)
Patient 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)
Patient 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

## CONCLUSIONS

- MDROs may persist through patient occupancy changes and room cleaning.
- Patients requiring assistance with hand hygiene, reflecting functional dependency, experienced a higher MDRO burden.
- Further investigation can improve cleaning and patient assistance practices, and clarifying MDRO transmission paths in nursing homes.

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