sectional study assessing MDRO carriage in daycare-attending and nonattending children in Wisconsin. **Methods:** We applied the following enrollment criteria: Children aged between 6 months and <6 years and not enrolled in kindergarten; children who did not have an MDRO infection in the previous 6 months and did not receive any antimicrobials in the previous month; and children who did not have a gluten allergy, asthma, eczema, allergic rhinitis, cystic fibrosis, or an immunodeficiency. Children were enrolled by a parent or guardian who filled out a questionnaire on MDRO risk factor history and diet. Samples were collected from the nares, axilla or groin (pooled swab), and stool. Nasal samples were cultured for *H. influenzae*, *S. pneumoniae*, *M. catarrhalis*, and methicillin-resistant *S. aureus* (MRSA). Skin samples were cultured for MRSA, and stool samples were cultured for MRSA, *C. difficile*, vancomycin-resistant enterococci (VRE), and extended-spectrum β-lactamase–producing Gram-negative bacilli (ie, ESBL GNR). **Results:** In total, 44 children were enrolled in this study. The average age was 2.6 years and 50% were girls. Furthermore, 30 (68.2%) were identified by their parents as white, 9 (20.5%) as black, and 5 (11.3%) as other or multiracial. Incidentally, 23 children (52.3%) were enrolled in daycare. Overall, 18 children were positive for at least 1 organism, 9 of which had daycare exposure, and 5 children (1 in daycare) were positive for >1 organism (11.4%). From stool samples, 6 children (13.6%, 2 in daycare) were *C. difficile* carriers, 3 were VRE carriers (6.8%, 1 in daycare), 8 carried an ESBL GNR (18.2%, 4 in daycare), and 3 carried MRSA (6.8%, 1 in daycare). One child was positive for *H. influenzae* (2.3%, not in daycare) and 2 were positive for *S. pneumoniae* (4.6%, 1 in daycare) from nares swabs. One child was positive for MRSA (2.3%, not in daycare) from a skin swab. We detected no significant differences between children with and without daycare exposure for any organism. **Conclusions:** Children in this population had higher than expected rates of ESBL GNRs and MRSA for a community population. Daycare exposure was not correlated with increased carriage in this small pilot study, though larger longitudinal studies are needed.

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Multiscale Modeling of Patient Movement to Determine Effects of Surveillance on Healthcare-Associated Infections

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Background: The transmission of pathogenic organisms in healthcare settings is a major cause of healthcare-associated infections (HAIs). In recent years, infections with carbapenem-resistant Enterobacteriaceae (CRE) have become a significant public health threat, in part because many patients are arriving at the hospital already colonized, and colonization is a major risk factor for infection. Reducing transmission requires understanding how patient movement drives the spread of CRE; however, analysis of this issue has mostly been modeled at a hospital-level without much consideration for the population dynamics that occur outside of the hospital setting and how patients move between healthcare settings. Patients move between hospitals, other healthcare settings, such as long-term care facilities (LTCFs), and the community, all of which pose different colonization risks. Thus, studying each environment in isolation fails to realistically address the consequences of large-scale policy interventions. One such intervention is a statewide electronic registry to track patients who are known to be colonized or have had a CRE infection. Understanding the potential for reducing CRE morbidity and mortality requires consideration of small- and large-scale effects on patients' movement and transmission. **Methods:** We developed a multiscale, metapopulation model for hospitals, communities, and LTCFs in the state of Maryland. In our computational simulation, we included a regional- as well as a local-scale model that were informed by the patient-mix data from the Maryland Health Service Cost Review Commission. We examined the impact of implementing a registry compared to less coordinated scenarios. **Results:** The most effective policy was the implementation of an electronic registry which resulted in 9.6% median reduction in CRE HAIs in Maryland for simulated outcomes (Fig. 1). Other interventions included colonization screening at various or all hospitals and using a predictive algorithm to determine at-risk patients that need to be screened. These interventions only resulted in ~1%–3% reductions in HAIs. We also observed that coupling other interventions with an electronic registry does not aid in reducing more HAIs.

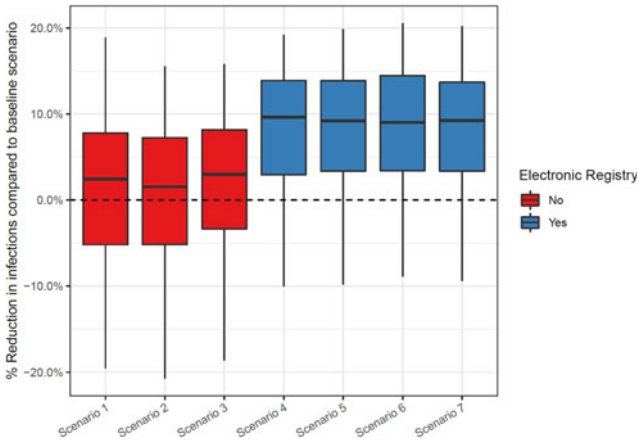

Fig. 1.

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Boxplot of simulated outcomes of all scenarios compared to the baseline scenario. The scenarios include (1) complete screening with no electronic registry, (2) selective screening with no electronic registry, (3) predictive screening with no electronic registry, (4) baseline with an electronic registry, (5) complete screening with an electronic registry, (6) selective screening with an electronic registry, and (7) predictive screening with an electronic registry. Scenarios 5-7 include the same interventions as 1–3 coupled with an electronic registry.

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National Frequencies of Administering or Prescribing Immunosuppressive Opioids in US Ambulatory Care Settings: 2006–2016

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