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Letter to the Editor

Health equity: The missing data elements in healthcare outbreak response

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To the Editor—Racial and ethnic minority patients are disproportionately affected by healthcare-associated infections (HAIs).[1–4] Patients may be at increased risk due to the underlying influence of several factors such as demographics and comorbidities. Studies of patient-level risk factors for specific HAIs have focused on racial and ethnic inequities,[1–4] but less is known about other patient-level characteristics that may place patients at greater risk of HAIs during an outbreak or facility-level factors that may place a facility at greater risk of experiencing HAI outbreaks. Additional data are needed beyond what is currently routinely collected in outbreak investigations. Are certain patients more likely to experience harm (eg, increased exposure to pathogens, infection, morbidity, or mortality) if they are in a facility experiencing an HAI outbreak? Are certain facilities (eg, based on populations served, geography, or facility type) more likely to experience HAI outbreaks? Further research is needed to better understand which patient and facility-level factors play a role in differential risk of HAI outbreaks, and collecting these additional data can help elucidate these factors.

Previous studies have demonstrated that certain demographic characteristics and comorbidities place patients at differential risks for HAI. Bakullari et al[2] analyzed Medicare Patient Safety Monitoring System data on race, ethnicity, sex, age, and comorbidities of >79,000 patients and found that Asian and Hispanic–Latino patients had a higher occurrence of HAI compared with White patients. Other studies have shown that facilities in regions with high local poverty levels have higher rates of surgical-site infection after colectomy.[5,6] Whether these types of characteristics translate to differential risk of being part of an HAI outbreak is less clear. To address this question, patient-level social and demographic variables and comorbidity information, such as immunocompromising conditions, cardiovascular disease, diabetes, and obesity should be collected about patients who are part of an HAI outbreak.[3,4,7,8] Facility-level characteristics, such as location and urbanicity, should also be collected for facilities experiencing HAI outbreaks. This information may reflect a facility's ability to protect patients during outbreaks. For example, a facility in an underresourced community may experience factors, such as staffing shortages, that could influence HAI risk.

Collecting additional data that are related to HAI outbreaks can help identify patient-level characteristics: race, ethnicity, sex, and sexual orientation, as well as facility-level characteristics, such as ZIP code, patient pay information, status of healthcare facility (eg, for profit or nonprofit, federally qualified health center) and facility designations (eg, health professional shortage or medically underserved area). Analysis of patient and facility-level characteristics will provide insight into both markers (eg, race, ethnicity, sex, and sexual orientation) of inequities related to outbreaks and drivers (eg, structural racism, inequity in income, inequity in healthcare access, and health insurance coverage) that perpetuate health inequities.[9,10] Collection and analysis of these data are critical to inform the appropriate and equitable allocation of resources toward preventive strategies that could decrease risk of HAI outbreaks across facilities and mitigate related patient harms. These data would also expand opportunities to research and evaluate the effectiveness of tailored interventions to prevent outbreaks and decrease inequities.[1,3]

Important challenges must be considered when incorporating the collection of health-equity–related variables in HAI outbreak investigations such as those related to training, analysis, and data interpretation. HAI outbreak investigators might not have the time, resources, or experience to collect these additional data elements during the active phase of the outbreak when efforts are focused on halting the outbreak. Collection of additional data in real time will not necessarily contribute to the immediate cessation of the ongoing outbreak or resolution of infections. However, most patient and facility-specific characteristics can be collected and analyzed retrospectively after an outbreak has resolved. To further alleviate the burden associated with retrospective collection of health-equity–related information, healthcare facilities and public health should dedicate resources to explore how to capture and complete these data fields efficiently using existing data systems such as electronic medical records.

To investigate potential inequities related to HAI outbreaks and implement tailored prevention strategies, standardized health-equity–related data collection must first be established. HAI outbreak investigators, such as infection preventionists, epidemiologists, and public health practitioners, can play a central role in establishing processes to facilitate collecting this information. Using a standardized list of variables that incorporates expanded patient and facility-level characteristics will improve the comprehensiveness and quality of data collected. To assist healthcare

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facilities and public health entities in collecting this information, the Centers for Disease Control and Prevention (CDC) Division of Healthcare Quality Promotion in collaboration with the Council for Outbreak Response: Healthcare-Associated Infections and Antimicrobial-Resistant Pathogens (CORHA) created a comprehensive list of patient and facility-level variables that can be collected during or following an HAI outbreak investigation (https://www.corha.org/resources-and-products/?filter_cat=data-management). These variables were selected to capture potential health inequities through consultation and collaboration with the CDC and Agency for Toxic Substances and Disease Registry's Social Vulnerability Index team and CDC's National Center for Emerging Zoonotic and Infectious Diseases health equity experts. Existing standards and validated instruments were used to inform the development of the standardized list. We encourage public health entities and healthcare facilities to use and adopt these standardized variables to help enhance our understanding of the epidemiology of outbreaks in terms of person, place, and time to elucidate risk factors for HAI outbreaks, to share findings with surrounding communities for collaborative action, and to address underlying inequities.

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References

1. Argamany JR, Delgado A, Reveles KR. *Clostridium difficile* infection health disparities by race among hospitalized adults in the United States, 2001 to 2010. *BMC Infect Dis* 2016;16:454.
2. Bakullari A, Metersky ML, Wang Y, *et al.* Racial and ethnic disparities in healthcare-associated infections in the United States, 2009–2011. *Infect Control Hosp Epidemiol* 2014;35 suppl 3:S10–S16.
3. Chen J, Khazanchi R, Bearman G, Marcelin JR. Racial/ethnic inequities in healthcare-associated infections under the shadow of structural racism: narrative review and call to action. *Curr Infect Dis Rep* 2021;23:17.
4. Fortin-Leung K, Wiley Z. What about race and ethnicity in antimicrobial stewardship? *Infect Control Hosp Epidemiol* 2022;43:400–401.
5. Qi AC, Peacock K, Luke AA, Barker A, Olsen MA, Joynt Maddox KE. Associations between social risk factors and surgical site infections after colectomy and abdominal hysterectomy. *JAMA Netw Open* 2019;2: e1912339.
6. Wiemken TL, Wright MO, Johnston KJ. Association of hospital-area deprivation with hospital performance on health care associated infection rates in 2018. *Am J Infect Control* 2020;48:1478–1484.
7. Braveman P. What are health disparities and health equity? We need to be clear. *Public Health Rep* 2014;129 suppl 2:5–8.
8. Penman-Aguilar A, Talih M, Huang D, Moonesinghe R, Bouye K, Beckles G. Measurement of health disparities, health inequities, and social determinants of health to support the advancement of health equity. *J Public Health Manag Pract* 2016;22 suppl 1:S33–S42.
9. Illustrative examples of CORE goals. Centers for Disease Control and Prevention website. https://www.cdc.gov/healthequity/core/goals/index.html. Updated March 8, 2022. Accessed July 8, 2022.
10. What is health equity? Centers for Disease Control and Prevention website. https://www.cdc.gov/healthequity/whatis/index.html. Updated July 1, 2022. Accessed July 8, 2022.

Identifying and addressing social determinants of health in pediatric outpatient parenteral antimicrobial therapy

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To the Editor—Outpatient parenteral antimicrobial therapy (OPAT) improves care and reduces costs by allowing patients to complete prolonged therapy at home.[1] Most pediatric literature related to OPAT[2] focuses on maximizing intravenous (IV)-to-oral conversion to avoid known catheter-associated complications and antibiotic toxicity. But for cases without oral alternatives, no evidence-based method exists to determine which patients will succeed with OPAT or which social determinants of health (SDOH) drive OPAT outcomes. The current OPAT guidelines of the Infectious Diseases Society of America (IDSA)[3] acknowledge a paucity of evidence; thus, guidance lacking on equitable OPAT use for patients experiencing high social risk. A gap exists in our ability to identify and mitigate the impacts of unconscious bias and systemic racism on OPAT delivery when individual providers must judge which patients are "appropriate" for OPAT.

To examine and learn from the biases inherent in our own pediatric OPAT programs, we describe 2 challenging OPAT cases and propose best practices to identify, evaluate, and address barriers to achieving favorable OPAT outcomes. We identified 2 core questions to examine when considering OPAT: (1) "Is continued hospitalization preferable?" and (2) "What individual SDOH needs must be addressed to support successful OPAT?"

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OPAT versus continued hospitalization

Case 1: With first-time parents carrying a remote history of substance use disorder, an infant with bacteremic urinary tract infection was deemed "not appropriate" for OPAT and remained hospitalized for 2 weeks to complete treatment. The provider teams

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