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## 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).<sup>1-4</sup> 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,<sup>1-4</sup> 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<sup>2</sup> 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.<sup>5,6</sup> Whether these types of characteristics translate to differential risk of

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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.<sup>3,4,7,8</sup> 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.<sup>9,10</sup> 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.<sup>1,3</sup>

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 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](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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