

## EDITORIAL

## Infectious Disease

# HIV screening in the emergency department: Thoughts on disparities and the next step in ending the epidemic

Diagnosis of HIV infection remains an important public health priority and a critical step in the care continuum.<sup>1,2</sup> Although reductions of those undiagnosed have occurred during the past decade, as of 2018,  $\approx$ 162,500, or 14% of all HIV infections, remain undiagnosed in the United States.<sup>3</sup> The largest group of persons newly infected remains men who have sex with men, although undiagnosed HIV continues to be found disproportionately among racial and ethnic minorities and young adults.<sup>4</sup>

The Centers for Disease Control and Prevention and US Preventive Services Task Force recommend non-targeted (non-risk-based) HIV screening in settings where the prevalence exceeds 0.1%, which includes most emergency departments (EDs).<sup>5,6</sup> These recommendations were principally driven by the notion that targeted (risk-based) screening generated unintentional barriers to testing at both the clinician and patient levels, thus raising concerns about suboptimal rates of testing and diagnoses.<sup>7</sup> Implicit in this concern was the idea that rates of testing across different demographic groups (eg, sex, race/ethnicity, socioeconomic) would also suffer, and importantly, further perpetuate disparities among these and potentially other groups most at risk for HIV.

In their recently published article in *JACEP Open*, Hill and colleagues describe a secondary analysis of a large administrative data set from a Centers for Disease Control and Prevention-funded non-targeted HIV screening program using opt-out consent from 2 large hospitals in Houston, Texas.<sup>8</sup> During the course of  $\approx$ 13 years, 885,199 HIV tests were performed, resulting in 1795 (0.2%) HIV diagnoses. The authors describe testing and HIV diagnoses stratified by sex and racial/ethnic groups, specifically concluding that African American females had the largest disparity between the population tested and those who tested positive for HIV.

All of this raises questions about disparity in the context of ED-based HIV screening. Recognizing the historical context of HIV infection in the United States, the stigma that has followed the diagnosis for nearly 4 decades, and the evolution of the epidemic to involve non-traditional risk groups (ie, racial/ethnic minorities and heterosexuals), we must ask several important questions, namely, to what extent does disparity exist, what are the drivers of such disparities, and how do we reduce disparities with a goal of achieving health equity?

The diagnostic prevalence (ie, the proportion of HIV diagnoses among those tested) reported by Hill et al is consistent with prevalences reported from other EDs nationally when implementing similar screening strategies, including in geographic areas with relatively high underlying HIV burden.<sup>9–14</sup> This prevalence also exceeds the 0.1% screening threshold recommended by the Centers for Disease Control and Prevention for non-targeted screening,<sup>5</sup> although it remains unclear what proportion of the 0.2% reported by Hill et al were previously undiagnosed or the extent to which repeat diagnoses existed in this data set. Also, given that visits appear to be the unit of analysis, it is also unknown the extent to which repeat visits—especially if weighted toward certain sex or racial/ethnic groups—bias the results.

Although the authors do not report baseline demographics for these EDs (ie, among all patients evaluated and at the patient level), the majority of those who completed testing were White (66%) and female (59%), noting importantly that 30% were Black or African American and 50% were Hispanic. These distributions may represent the distributions among the general ED populations studied, which if so would align with the goal of performing non-targeted screening in that HIV testing should be offered in an unselected manner, with deference to a patient's demographics. On the other hand, if these distributions differed from baseline demographics, then one should conclude some form of selection bias was present either in how screening was performed by clinical staff or how it was accepted by patients. Ideally, when reporting results similar to those reported by Hill and colleagues, demographics from the base population would be included to better understand the extent to which disparities exist.

Using a non-targeted selection strategy for identifying patients for HIV testing should, in principle and by definition, generate a cohort of tested patients that mirrors the base population for which it is applied.<sup>15</sup> Unfortunately, this may not occur and, if not, may be driven by deviations in the application of the screening approach or by acceptance of those receiving the intervention. Clinical staff may be subject to both explicit and implicit biases,<sup>16</sup> both of which could affect how patients are screened in an ED, and both of which, without question, require further study to understand their influence while building a framework where bias is ultimately eliminated. To our knowledge, little work has been done in this space, and there

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is a critical need to quantify the influence of bias, or potential bias, within screening programs as this singularly may attenuate screening effectiveness.

On the other hand, patients may also drive disparities. The Health Belief Model,<sup>17</sup> one of the most widely used conceptual frameworks aimed at understanding and explaining patient behavior, was originally developed in the 1950s by social scientists and later expanded with the goal of understanding the failure of people to adopt disease prevention strategies or screening tests for the detection of disease. Viewed through a psychosocial lens, the Health Belief Model includes perceptions about susceptibility, severity, benefit, and barriers; these 4 domains, when combined with self-efficacy and cut to action, help explain health-related action. As such, the acceptance of HIV testing in the context of an ED visit (ie, one where screening is performed in parallel and often unrelated to the reason for the visit) may differ depending on a patient's prior testing history, his or her perceived risk, perceptions about what will happen if diagnosed or effectiveness of treatment, costs associated with testing or subsequent care, concerns about stigma, or a number of other potential influences. Understanding the influence of patient perception likely requires an extension of work to include survey or qualitative methods, but evaluating the extent to which testing is accepted by patients will help frame our thinking about how patients receive screening interventions.

As an example from the study by Hill and colleagues, nearly 60% of those tested were female, which likely differs from the general population served by these EDs where sex is often more balanced and reflective of the broader sex distribution within the community; this suggests a disparity with fewer males completing testing, which may reflect bias in how non-targeted screening was applied by clinical staff, the ability to offer or agree to testing because of acuity or condition (eg, illness or injury severity or altered mentation attributed to intoxication, both of which often disproportionately affect males) by patients, or other reasons.

Hill and colleagues also describe proportions of patient groups identified with HIV. Of the 1782 positive test results, 69% were male, 53% were Black or African American, 47% were White, and 36% were Hispanic. Furthermore, among those who were Black or African American, 62% were male; among those who were White, 78% were male; and among those who were Hispanic, 81% were male. It is well known that HIV disproportionately affects males (81% of all new diagnoses in the United States) and racial/ethnic minorities (67% of all new HIV diagnoses in the United States), with Black/African Americans being most affected (42% of all new diagnoses in the United States).<sup>3,18</sup> Critical to this, however, is the fact that Black/African American females are diagnosed with HIV more than twice as frequently as their male counterparts, which raises concerns about whether Black/African American males are being underdiagnosed or whether the HIV epidemic is in fact disproportionately affecting Black/African American females. The study by Hill et al reinforces these disparities and raises important questions about how we must improve our approaches to ED-based HIV screening to further identify those with undiagnosed infection.

Understanding the reasons for why differences occur when implementing HIV screening in the ED, including variances among how clinical staff perform or how patients receive screening, is a critical next step in understanding the forces inherent in screening effectiveness. Ultimately, our goal must be to eliminate disparities on a social level, generally, and in how HIV screening is performed, specifically; doing so will undoubtedly serve as an important next step in ending the HIV epidemic.

## CONFLICTS OF INTEREST

The authors report no conflicts of interest.

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## KEYWORDS

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