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Achieving national HIV prevention goals: the case for addressing depression and other mental health comorbidities

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With the *Ending the HIV Epidemic in the US (EHE)* initiative, the Department of Health and Human Services set an ambitious goal of reducing new HIV infections by 90% by 2030 [1]. Because people who achieve and maintain a suppressed viral load have effectively no risk of transmitting HIV to their sexual partners [2], HIV treatment is a key pillar of both *EHE* and the current (2021–2025) National HIV Strategy [1,3]. At year-end 2019, 65.5% of persons with diagnosed HIV in the USA were virally suppressed [4]. Efforts to raise this to 95% [3] will require additional efforts to identify and address barriers most detrimental to medication adherence and sustained care engagement, the proximal determinants of viral suppression. Mental illness is one of those barriers and it is treatable.

Mental health disorders are prevalent among persons with HIV (PWH) [5] and more common than among the general population. Nationally representative data, adjusted for covariates, find that that substance dependence is more common among PWH, and lifetime illegal drug use more than four times higher than among people who do not have HIV [6]. Women with HIV have five-times the rate of post-traumatic stress disorder compared with the general population of women [7] and national data indicate that prevalence of depression among PWH is more than three times that of the general population [8]. Depression is the most common mental health diagnosis among PWH, with current or past month estimates for depression disorders ranging from 21% to 25.6% [8,9].

Owing to the high prevalence of depression among PWH, a substantial body of research now exists documenting its negative impact on HIV care continuum outcomes [10–12]. Systematic reviews and meta-analyses have confirmed depression's association with poorer antiretroviral medication adherence [10,11] and increased odds of dropping out of HIV care [12]. Longitudinal studies have demonstrated that PWH who become depressed have nearly two times the risk of becoming nonadherent relative to those who do not become depressed [13], and that as the number of days with depression increases, so does the risk of missing care appointments and losing viral suppression [14]. Given the known benefits of viral suppression [2], these findings suggest that untreated depression is not only a barrier

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Conflicts of interest

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to a patient's own health and well being but also by extension, to our ability to achieve our national target for viral suppression among persons with diagnosed HIV.

As shown by Pence *et al.* [15], DiPrete *et al.* [16] and Cholera *et al.* [17], many people with diagnosed HIV and depression are not benefitting from available efficacious depression treatment. Either their depression is unrecognized, or if recognized, not treated [15,16]. Even among those who are treated for depression, not all are treated according to guidelines to reach remission [17]. Due to gaps in this 'depression cascade' (or depression care continuum), only a small proportion of PWH with depression achieve depression remission [15,16]. Because data on the proportion of people at each step in the depression cascade (i.e. undiagnosed, untreated, not treated according to guidelines) often come from different studies, it has been difficult to estimate the size of each of these populations. Furthermore, because data on the depression cascade are not always tied to HIV disease progression, the potential negative impact of inadequately treated depression on viral suppression rates is unknown.

By comprehensively assessing patient status in the depression cascade, and then linking that status to nonsuppression, Lesko *et al.* [18] provide data that move us closer to quantifying the broad national value of mental health interventions for HIV prevention. Specifically, with inputs such as these, national disease progression models could potentially be used to predict the population impact of closing the gaps in the depression cascade on viral suppression rates. Together with a growing recognition that mental illness and substance use disorders are part of a syndemic involving HIV [3], such findings – if they show an impact of depression treatment on viral suppression rates – could accelerate attention to and prioritization of mental health services for PWH.

At the same time, findings by Lesko *et al.* [18] cautiously point towards the potentially asynchronous relationship between depression remission and viral suppression. Perhaps due to long-lasting effects of depression on factors that influence antiretroviral therapy adherence (e.g. memory, social isolation), patients may need additional HIV support following remission of mood symptoms. Attempts to close the gaps in the depression cascade will likely require addressing other challenges as well. For example, across studies and countries, mental illness stigma (i.e. negative attitudes and perceptions about people with mental illness) is greater among minority than majority racial and ethnic communities [19], and similar beliefs (e.g. depression equates to personal weakness) have been noted among African American/black people [20,21], who account for a higher proportion of HIV diagnoses in the USA compared with people of other races and ethnicities [22]. Although depression is not more prevalent among black than among white people, black people are more likely to suffer from depression that is chronic and prolonged [23,24]. Racial incongruity between providers and patients, experiences of mistreatment or discrimination leading to mistrust of medical providers, and preferences for other forms of coping/resilience (e.g. religious coping, social support, ethnic identification) in lieu of medical treatment may also contribute to the under-reporting of depression and greater mental health treatment attrition by black people with socioeconomic stress [23]. Although cost remains the greatest barrier to mental healthcare [25], lack of familiarity with symptom expression across cultures or knowledge of different responses to treatment across racial or

ethnic groups can lead to missed or inaccurate diagnoses by clinicians or failure to provide adequate treatment once diagnosed [20,23,26]. Addressing the mental health provider shortage, diversifying the mental health workforce [27–29], educating providers about provider bias, providing training in culturally sensitive approaches to patient engagement [23] and ensuring that mental health services are accessible and insured [30] may help close the gap in diagnosis and treatment of depression among PWH.

Depression is not the only unmet mental health need among PWH [5,31] but it is one with multiple intervention options. Addressing substance use, anxiety, trauma and other behavioural health issues is both consistent with the aspirations of the National HIV Strategy for integrated mental health and infectious disease services [3] and likely to extend the positive impact of mental health treatment on viral suppression.

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