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An HIV Behavioral Intervention Gets It Right—and Shows We Must Do Even Better

Lisa R. Metsch, PhD, **Tracy Pugh, MHS**, and **Grant Colfax, MD**

Department of Sociomedical Sciences, Mailman School of Public Health, Columbia University, New York, New York (Metsch); Department of Sociomedical Sciences, Mailman School of Public Health, Columbia University, New York, New York (Pugh); Marin County Health and Human Services, San Rafael, California (Colfax)

Despite over 2 decades of increasingly effective medications, most people living with human immunodeficiency virus (HIV) in the United States are still not benefiting from these treatments. The Centers for Disease Control and Prevention estimate that fewer than half (49%) of the 1.1 million Americans living with HIV have the virus controlled.[1] With once-daily, well-tolerated regimens, how can this be?

Extensive research has elucidated the considerable individual, systemic, and structural barriers to HIV care.[2] In the United States, there are few behavioral interventions proven to support clinically meaningful and sustained virologic suppression, and still fewer that demonstrate reduced mortality or increased quality of life.[3,4] Despite increased attention on improving outcomes along the HIV care continuum—the sequential steps of testing, linking, engaging, and treating people for HIV—there remains a paucity of rigorous evidence that case management and other individualized approaches improve biologic outcomes. There are even fewer proven interventions addressing the social determinants of health that drive HIV disparities in subpopulations in the United States, where HIV is especially prevalent, including among men who have sex with men, African Americans, substance users, and transgender people. As is well documented, the socioeconomic and structural factors that drive disparities in morbidity and mortality in these communities appear to strengthen HIV's hold. In many cases, HIV prevalence overlaps other negative factors influencing the life course: for instance, it has been estimated that 1 of every 7 persons living with HIV is in jail or prison.[5]

The study by Cunningham et al[6] in this issue of *JAMA Internal Medicine* is an important and welcome advance in elucidating what it takes to improve HIV outcomes in populations where other interventions have largely failed. Conducted among a diverse sample of HIV-

Corresponding Author: Lisa R. Metsch, PhD, Department of Sociomedical Sciences, Mailman School of Public Health, Columbia University, New York, NY, USA, 722 168th Street, Room 917, New York, NY 10032 (lm2892@cumc.columbia.edu).

Additional Information: From 2012 to 2014, Dr Colfax served as Director of the White House Office of National HIV/AIDS Policy, Washington, DC.

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positive men and transgender women, this study is the first evidence-based randomized clinical trial to demonstrate sustained viral suppression for people living with HIV who are released from jail to community settings.[7] The trial was well designed, had high participation rates and treatment exposure, a transitional case management control group, and adequate follow-up rates. While the relative contribution of intervention components cannot be determined, it is worth noting that the authors took a multimodal approach to improve care, addressing socioenvironmental factors such as HIV-related stigma and behavioral factors. In addition, the use of peer navigators with lived experience may have also contributed to the positive results. Importantly, continued higher viral suppression in the intervention arm was found 6 months after participants completed the navigator sessions, suggesting a maintenance of effect.

The efficacy of the intervention in preventing declines in viral suppression after release from jail are both statistically and clinically significant. Indeed, the number needed to treat to realize the benefit of the intervention is 7, a favorable result compared with other biomedical and behavioral interventions.[7] Unfortunately, the authors do not provide a cost analysis, and adopting, scaling, and sustaining a 12-session intervention may be a challenge for public health programs.

Despite these caveats, LINK-LA (Linking Inmates to Care in Los Angeles)[6] provides a new, relatively feasible behavioral intervention to successfully ensure continuity of care when transitioning from incarceration to community settings. Policymakers and local health jurisdictions should weigh the relative evidence to decide whether to adopt the intervention or wait for confirmation from additional research.

Perhaps as important as its positive results, LINK-LA brings into sharp focus a key question for HIV research going forward: what does it take to optimize viral load suppression in a given population? While intervention participants did better than controls, fewer than half were virologically suppressed at 12months. Our research group[8] had similar, though less robust, findings in a recent navigator-plus-financial-incentives randomized clinical trial of HIV-infected substance users. Given these results, we have to ask what it will take to do better, and what interventions to accomplish this would be sustainable over time. As things stand, even if LINK-LA and interventions with similar efficacy were fully deployed and their effectiveness matched their efficacy, we would still be considerably far from the goal of the United Nations Program on HIV/ AIDS (UNAIDS) that90%of people engaged in care be virologically suppressed.

Whether increasing the focus on multiple individual needs, further improving antiretroviral regimens (such as long-acting medications), or addressing broader policy or social issues increases the efficacy of interventions remains to be determined. At the individual level, more work needs to be done to develop multimodal interventions that address the intersecting medical and psychological needs of people living with HIV. For instance, LINK-LA found increases in mental health treatment and psychiatric hospital nights in the intervention arm,[6] suggesting that the intervention may have helped people access care. On the other hand, while substance use declined in both arms, the intervention showed no increased benefit. How do we do better in addressing HIV, mental health, and substance use

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outcomes in research and practice? And when there is adequate evidence of effect, can we better support implementation of programs with well-justified funding and careful evaluation. For instance, while decades of evidence support treatment for opioid addiction and syringe access programs improve HIV outcomes, these programs are still not sufficiently available, even as deaths attributed to the drug overdose epidemic now supersede those of the US AIDS epidemic at its peak.

On the other hand, given the many social challenges that people living with HIV may be confronting at any given time, is it likely that individual interventions alone will get us where we need to be? Are interventions truly taking in to adequate consideration the context in which people live and operate? In addition to focusing on individual behaviors, interventions will likely need to address these broader factors in multifactorial ways to increase efficacy. Of course, the increased complexity of these interventions often increases the challenges of rigorous trial design and research costs.

Indeed, some have argued that addressing the broader social determinants of health is necessary for robustly bending the curve on the domestic HIV epidemic and for optimizing individual-level interventions.[9] As communities most affected with HIV grapple with multiple complex and intersecting issues including homophobia, genderphobia, institutionalized racism, swings in health care policy, mass incarceration, lack of socioeconomic mobility, and inadequate access to basic goods (food, housing, education), it has been persistently difficult for people to access, engage with, and benefit from care. Interventions that acknowledge, address, and mitigate these broader issues are likely necessary for high proportions of people living with HIV to benefit from treatment, and their potential effects should be tested. Unfortunately, we have a long way to go in this regard, and the current US political administration's actions—including in health care policy through the weakening of the Affordable Care Act and implementation of regressive criminal justice–related policies—risk further marginalizing and stigmatizing communities where HIV is most concentrated. Research must be conducted to document the consequences of these actions.

Notwithstanding these formidable challenges, LINK-LA shows that it is possible for people to navigate their way through often-byzantine systems to get care while they themselves manage multiple competing needs.[6] Whether the LINK-LA results translate to sustainable positive clinical outcomes in the health care delivery setting and in other populations and other jurisdictions should be a research priority. It is also worth considering and testing how much more potent this intervention could be if complemented by a less fragmented and more accessible national health care system coupled with increased attention to the social forces that drive continued in equalities and contribute to the continued HIV epidemic in the United States.

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