Detection of Undiagnosed HIV Among State Prison Entrants

A substantial proportion of individuals infected with the human immunodeficiency virus (HIV) in the United States enter a correctional facility annually. Therefore, incarceration presents an opportunity for HIV detection. Even though many states have adopted policies of mass HIV screening of inmates, the extent to which HIV testing on prison entry detects new infections is unclear.

We examined HIV prevalence among inmates entering a state prison system and the proportion known to state public health authorities as having previously tested HIV seropositive.

Methods | We evaluated individuals entering the North Carolina Department of Public Safety (NC DPS) between June 2008 and April 2009. Testing entering inmates for HIV in North Carolina was voluntary; however, a state statute mandated screening for syphilis. Excess blood was batch tested for HIV antibodies (Labcorp Inc). Before removing links to the inmate’s HIV test result, identifiers were used to merge prison test results with the North Carolina Department of Health and Human Services (NC DHHS) HIV testing database. The University of North Carolina biomedical institutional review board, the NC DPS human subjects review committee, and the US Office of Human Research Protections approved the study. A waiver of informed consent was provided.

Results | During the study period, 23,373 inmates entered the NC DPS (Table); most were black men and more than half had a prior incarceration. Of these 23,373 inmates, 22,134 (94.7%) had HIV testing performed on blood remaining after syphilis testing (Figure). Reasons for not having an HIV test included no blood drawn, insufficient quantity, or lost specimen. Testing of excess blood revealed 320 inmates (1.45%) to be HIV seropositive. Of those who tested HIV seropositive, 300 (93.8%) were known by the NC DHHS to be infected with HIV prior to incarceration. Therefore, 20 of 22,134, or 0.09% (95% CI, 0.06%-0.14%) of tested inmates were infected and not known to be previously.

Among the 1239 entering inmates without HIV testing of excess blood, 1066 underwent voluntary HIV testing by the prison, 36 of whom (4.8%) were HIV seropositive. All 36 were previously known by the NC DHHS to be infected with HIV.

Discussion | Although the overall prevalence of HIV infection was high at 1.45%, the prevalence of undiagnosed infection was 0.09% and the yield of screening of individuals entering prison in North Carolina was low, with more than 93% of infected inmates previously known by health authorities to be infected. Therefore, in contrast to the perception that undiagnosed HIV infection is prevalent among incarcerated individuals, our results indicate that few new cases of HIV enter prison. The confidence interval around the prevalence of undiagnosed infection included 0.1%, the threshold above which the US Centers for Disease Control and Preven-
tion recommends routine HIV screening in health care settings. Other at-risk populations with higher levels of undiagnosed HIV infection may constitute a higher priority for screening for HIV than prisoners. Of all new HIV diagnoses in North Carolina in 2008-2009, less than 2% were prison entrants.

There are limitations to our study. Prior HIV testing may have occurred as a consequence of screening during a previous incarceration, although almost half of the inmates with known HIV infection had no history of incarceration. Additionally, some with a prior positive HIV test may not have received their results and without screening upon incarceration would remain unaware of their HIV status. However, according to the NC DHHS, 90% of those testing HIV seropositive in North Carolina in 2008-2009 were notified of their results. Furthermore, although North Carolina has the eighth highest prevalence of HIV in the United States, these results may not generalize to other states. In addition, the few cases of previously unknown HIV coupled with limited available inmate data precluded analyses to identify prisoner characteristics that could be used to enhance detection of undiagnosed HIV infection.

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Statistical analysis: Wohl, Rosen, May.
Obtained funding: Wohl, Golín, Rosen.
Administrative, technical, or material support: Wohl, White.
Study supervision: Wohl, Golín, White.

Conflict of Interest Disclosures: The authors have completed and submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Dr Wohl reported serving as a consultant to Janssen and Gilead; and receiving grant funding from Merck, GlaxoSmithKline, Gilead, and ViV. Dr White reported receiving payment for lectures from Gilead Sciences. No other disclosures were reported.

Funding/Support: This research was supported by grant RO1 MH079720-01A1 from the National Institute of Mental Health and grant AI 50410-04 from the University of North Carolina Center for AIDS Research.

Role of the Sponsor: The National Institute of Mental Health and the University of North Carolina Center for AIDS Research had no role in the design and conduct of the study; collection, management, analysis, and interpretation of the data; preparation, review, or approval of the manuscript; and decision to submit the manuscript for publication.

Additional Contributions: We acknowledge the contributions of the following co-investigators who assisted in study design and analysis: Andrew Kaplan, MD, J. Michael Bowling, PhD, Peter Leone, MD, and Robert Devellis, PhD (all with the University of North Carolina, Chapel Hill); Paula Smith, MD (North Carolina Department of Public Safety [NC DPS]); and Rebecca Ochtera, PhD (Kaiser-Permanente). We also acknowledge the University of North Carolina, Chapel Hill, research staff: Kelly Green, MPH, Monique Williams, Dani Strauss, Malisha Ruffin, and Catherine Grodensky, MPH. The NC DPS facility nurses and administrators and the North Carolina Department of Health and Human Services Communicable Disease Branch provided access and constructive advice to the research team. Drs Bowling, Devellis, and Leone and Ms Green, Williams, Strauss, and Ruffin received salary support from the National Institutes of Health grant supporting the study. Drs Kaplan, Smith, and Ochtera and Ms Grodensky did not receive compensation for their contributions.