

# A Missed Opportunity: Hepatitis C Screening of Prisoners

Grace E. Macalino, PhD, Darpun Dhawan, BA, and Josiah D. Rich, MD, MPH

In 2003, the Centers for Disease Control and Prevention issued recommendations to screen all inmates with a history of injection drug use or other risk factors for hepatitis C. We compared self-reported risk factors for hepatitis C with serostatus from inmates in the Rhode Island Department of Corrections. Of the male inmates who were hepatitis C positive, 66% did not report injection drug use. Risk-based testing underestimates the hepatitis C virus (HCV) prevalence in correctional settings and limits the opportunity to diagnose and prevent hepatitis C infection. (*Am J Public Health*. 2005;95:1739–1740. doi:10.2105/AJPH.2004.056291)

Nearly 2% of the US population is chronically infected with hepatitis C virus (HCV).<sup>1</sup> An estimated 29% to 43% of all people living with HCV infection in the United States are released from a correctional facility each year.<sup>1</sup> The high prevalence of HCV infection in correctional facilities emphasizes the need for increased screening, treatment, and prevention counseling within the correctional system. Recommendations for the identification of HCV infection within the correctional setting continue to evolve. In 2003, the Centers for Disease Control and Prevention (CDC) published guidelines that strongly recommend screening of inmates who report HCV infection risk factors, primarily history of injection drug use.<sup>2</sup>

Policy makers, researchers, and the public continue to debate the need to screen asymptomatic HCV infection and the adequacy of screening on the basis of risk factors.<sup>3–5</sup> We compared self-reported injection drug use with actual serostatus among inmates to evaluate the validity of self-reports in this setting. These data can inform whether testing on the basis of self-report will impact HCV infection among prisoners.

## METHODS

Data for this analysis were collected as part of a larger study investigating the prevalence and intraprison incidence of bloodborne pathogens, the methods of which are described fully elsewhere.<sup>6</sup> Briefly, a representative sample of inmates at intake was obtained between 1998 and 2000 from the Rhode Island Department of Corrections, where 15 000 male and 2500 female intakes occur each year. Serum specimens from mandatory HIV testing were tested for HIV, hepatitis B virus (HBV), and HCV and linked to demographic variables and medical intake data. Hepatitis C antibody positivity was determined from reactivity to at least 2 HCV antigen bands encoded by different parts of the HCV genome, assayed with Ortho HCV Version 3.0 ELISA (Ortho-Clinical Diagnostics, Raritan, NY).

For this analysis, we compared hepatitis C blood test results with injection drug use, self-reported to a nurse during intake in response to a question about either “drug or alcohol abuse” or “IV drug use.” Because this was a blinded research survey, no additional educa-

tion was given regarding HCV infection beyond informed consent. Each sentenced inmate was counted once, despite potential multiple incarcerations during the 2-year study period.

## RESULTS

HCV prevalence in the male inmate population was 23.1% (95% confidence interval [CI]=21.8, 24.3) among the 4263 inmates tested,<sup>6</sup> whereas 40.5% (95% CI=36.1, 44.7) of the female inmate population had positive HCV test results (n=499). Univariate correlates of HCV infection included being White, being aged 40 to 49, reporting injection drug use, and being previously incarcerated; in the final model, increasing age (older than 30) and injection drug use remained significant.<sup>6</sup> In our study population, self-reported data were available for 92.2% (3931 of 4263) of the men and 97.2% (485 of 499) of the women.

Our data comparing laboratory test results and self-reported data are shown in Table 1. Of those who were found to be hepatitis C positive, 65.5% of the men and 44.2% of the women did *not* report injection drug use at intake. Women were 2.3 times more likely (95% CI=1.7, 3.0) to report injection drug use among inmates who were HCV positive than were men.

## DISCUSSION

We found that most individuals who were HCV infected would not have been tested according to the CDC guidelines for risk-based HCV testing. One factor contributing to this underestimation is that self-reporting of injection drug use requires inmates to disclose illegal and stigmatized behaviors within the correctional setting. The timing and context of the screening itself may prevent many injection drug users from discussing incriminating behaviors. Studies that used urine toxicological screening to measure drug use among recently arrested inmates estimated that 25% to 74% of those who tested positive for drug use congruently reported recent drug use.<sup>7,8</sup> Fear of self-incrimination, mistrust of the prison system, stigma of heroin use, and lack of confidentiality all have been cited as

**TABLE 1—Comparison of Presence of HCV Antibody With Self-Reported Injection Drug Use: Rhode Island Prison Study Sample, 1998–2000**

	HCV Positive		HCV Negative	
	No.	%	No.	%
Men				
Reported injection drug use				
Yes	306	34.5	61	2.0
No	581	65.5	2983	98.0
Women				
Reported injection drug use				
Yes	110	55.8	13	4.5
No	87	44.2	275	95.5

reasons for the underreporting of injection drug use.<sup>7,9,10</sup>

The fact that women were more likely to report injection drug use may reflect gender disparities between these particular correctional facilities. The women's correctional facility processes 6 times fewer intakes per day, and all female inmates are seen by 1 physician. The intimate environment of the women's prison may allow for greater trust and disclosure of drug use.

As in many other correctional facilities, prisoners in the Rhode Island Department of Corrections may request testing, but there is no systematic access to information about HCV transmission, the availability of testing, or risk reduction practices.<sup>5</sup> Because most of the individuals are asymptomatic, if they are identified earlier, they can be educated to abstain from alcohol, seek treatment before the development of symptoms, and prevent transmission to others.<sup>5</sup> Because 1.3 million individuals who are infected with HCV are released from prison annually,<sup>11</sup> these efforts would affect not only the incarcerated population but also the community at large.

Concerns about mandatory testing in the correctional setting are valid—including topics such as confidentiality, stigma, cost, and adequate follow-up. However, testing only those with reported risk behaviors reinforces the stigma of HCV infection and drug use that may have led to incarceration and serves to further marginalize these individuals. The Rhode Island model of mandatory HCV testing has shown that early identification of infected individuals can lead to adequate edu-

cation and clinical care that can begin during incarceration and continue into the community.<sup>12</sup> Although no formal studies have been completed to date, the cost saved by early HCV diagnosis must be considered from both a clinical standpoint and the goal of averting new infections.

Critical evaluation and creative solutions are needed to overcome the challenges of HCV testing in unique correctional subpopulations (e.g., short stay, women). These solutions should include strategies that are responsive to the needs of a particular correctional setting, such as routine, mandatory, or voluntary HCV testing at intake, in addition to universal access to education and counseling services. Our data support the argument that risk-based screening alone is not sufficient to accurately confront the magnitude of HCV infection in prisons. Screening, diagnosis, and prevention services must be incorporated into correctional health systems to reduce progression of clinical disease and stem the transmission of infection. ■

#### About the Authors

Grace E. Macalino is with the Institute for Clinical Research and Health Policy Studies, Tufts New England Medical Center, Boston, Mass. Daryun Dhawan is with Brown Medical School, Providence, RI. Josiah D. Rich is with the Department of Medicine and Community Health, Brown University and the Center for Prisoner Health and Human Rights at The Miriam Hospital, Providence, RI.

Requests for reprints should be sent to Grace E. Macalino, PhD, Institute for Clinical Research and Health Policy Studies, Tufts New England Medical Center, 750 Washington St, Box 63, Boston, MA 02111 (e-mail: gmacalino@tufts-nemc.org).

This brief was accepted April 1, 2005.

#### Contributors

G. E. Macalino originated the study, supervised all aspects of its implementation, and led the writing of the brief. D. Dhawan assisted with the analyses, conceptualization, and writing of the brief. J. D. Rich established links between the study and the Rhode Island prison and provided senior guidance while writing the brief.

#### Acknowledgments

This research was funded by Centers for Disease Control and Prevention (grant U64/CCU119346).

The authors acknowledge all the Rhode Island Prison Study staff, whose endless hours of work and support contributed in so many ways—in particular Michael Patterson for his laboratory expertise and Michelle McKenzie for overseeing the project.

#### Human Participant Protection

All procedures and human participant protections related to this study were approved by the local institutional review boards of the Miriam Hospital, the Johns Hopkins Bloomberg School of Public Health, and the Centers for Disease Control and Prevention.

#### References

1. Hammett TM, Harmon MP, Rhodes W. The burden of infectious disease among inmates of and releasees from US correctional facilities, 1997. *Am J Public Health*. 2002;92:1789–1794.
2. Weinbaum C, Lyerla R, Margolis HS. Prevention and control of infections with hepatitis viruses in correctional settings. Centers for Disease Control and Prevention [published erratum appears in *MMWR Recomm Rep*. 2003;52:205–214]. *MMWR Recomm Rep*. 2003;52(RR-1):1–36; quiz CE1–4.
3. Butterfield F. Infections in newly released inmates are a rising concern. *New York Times*. January 28, 2003;sect A1:14.
4. Hammett TM. Adopting more systematic approaches to hepatitis C treatment in correctional facilities. *Ann Intern Med*. 2003;138:235–236.
5. Alter MJ, Seeff LB, Bacon BR, et al. Testing for hepatitis C virus infection should be routine for persons at increased risk for infection. *Ann Intern Med*. 2004;141:715–717.
6. Macalino GE, Vlahov D, Sanford-Colby S, et al. Prevalence and incidence of HIV, hepatitis B virus, and hepatitis C virus infections among males in Rhode Island prisons. *Am J Public Health*. 2004;94:1218–1223.
7. Harrison L, Hughes A. Introduction—the validity of self-reported drug use: improving the accuracy of survey estimates. *NIDA Res Monogr*. 1997;167:1–16.
8. Hser YI. Self-reported drug use: results of selected empirical investigations of validity. *NIDA Res Monogr*. 1997;167:320–343.
9. Darke S. Self-report among injecting drug users: a review. *Drug Alcohol Depend*. 1998;51:253–263; discussion 267–268.
10. Fendrich M, Xu Y. The validity of drug use reports from juvenile arrestees. *Int J Addict*. 1994;29:971–985.
11. *The Health Status of Soon-to-Be Released Inmates: A Report to Congress*. Chicago, Ill: National Commission on Correctional Health Care; 2002.
12. Crosland C, Poshkus M, Rich JD. Treating prisoners with HIV/AIDS: the importance of early identification, effective treatment, and community follow-up. *AIDS Clin Care*. 2002;14:67–71, 76.