Published in final edited form as:

AIDS Educ Prev. 2011 June ; 23(3 0): 96–109. doi:10.1521/aeap.2011.23.3_suppl.96.

An Evaluation of a Routine Opt-Out Rapid HIV Testing Program in a Rhode Island Jail

Curt G. Beckwith, MD^{1,2}, Lauri Bazerman, MS², Alexandra H. Cornwall, BA², Emily Patry, BS², Michael Poshkus, MD³, Jeannia Fu, BS², and Amy Nunn, ScD¹

¹Alpert Medical School of Brown University, Division of Infectious Diseases, Providence, RI

²The Miriam Hospital, Providence, RI

³Rhode Island Department of Corrections, Cranston, RI

Abstract

There is an increased prevalence of HIV among incarcerated populations. We conducted a rapid HIV testing pilot program using oral specimens at the Rhode Island Department of Corrections jail. 1364 detainees were offered rapid testing upon jail entrance and 98% completed testing. Twelve detainees had reactive rapid tests, one of which was a new HIV diagnosis. To evaluate the program qualitatively, we conducted key informant interviews and focus groups with key stakeholders. There was overwhelming support for the oral fluid rapid HIV test. Correctional staff reported improved inmate processing due to the elimination of phlebotomy required with conventional HIV testing. Delivering negative rapid HIV test results in real-time during the jail intake process remained a challenge but completion of confirmatory testing among those with reactive rapid tests was possible. Rapid HIV testing using oral specimens in the RIDOC jail was feasible and preferred by correctional staff.

Keywords

HIV/AIDS; rapid HIV testing; jails; corrections

INTRODUCTION

HIV prevalence among correctional populations is 3.5 times greater than the general population (Maruschak 2004). Approximately 17% of HIV-positive Americans pass through the correctional system every year (Spaulding, Seals et al. 2009). Additionally, racial and ethnic minorities are disproportionately incarcerated and infected with HIV. African Americans and Hispanics represent 35 and 18% of the incarcerated population and are approximately 7.5 and 2.5 times more likely to be HIV-positive than whites (Centers for Disease Control and Prevention 2008; Sabol and Couture June 2008). Persons entering correctional facilities also have increased rates of HIV risk behaviors, particularly substance use (Conklin, Lincoln et al. 2000; Valera, Epperson et al. 2009). Correctional facilities therefore provide access to a population with increased prevalence of HIV and increased risk of becoming infected. The Centers for Disease Control and Prevention (CDC) has recommended routine, opt-out HIV testing as part of the medical evaluation of inmates and recently released guidance on HIV testing within correctional facilities (Centers for Disease Control and Prevention 2006; Centers for Disease Control and Prevention 2009)

The correctional system is composed of both jails and prisons. Jails house detainees awaiting trial and inmates serving short sentences, typically less than one year, and serve as the portal of entry to correctional systems. As a result, jails offer important opportunities to deliver HIV testing services to persons passing through the correctional system who might not otherwise have access to health services. However, jails also have rapid turnover rates, with almost one-quarter of detainees released within 2 weeks (James 2004). Rapid HIV testing is an ideal way to reach this transient, high-risk population, and the feasibility of rapid HIV testing in jails has been demonstrated in several studies (Beckwith, Atunah-Jay et al. 2007; Kavasery, Maru et al. 2009; MacGowan, Margolis et al. 2009).

The Rhode Island Department of Corrections (RIDOC) jail has conducted routine opt-out HIV testing using conventional HIV antibody testing since the early 1990's. HIV testing and a tuberculin skin test are completed during the intake medical evaluation within 24 hours of incarceration. Written consent for HIV testing is obtained however HIV prevention counseling is not typically completed unless persons test positive. While this routine HIV testing program has been successful, persons who were released prior to the medical evaluation did not have the opportunity to be tested and persons incarcerated for one week or less were not likely to receive their conventional HIV test result prior to release (Desai, Latta et al. 2002; Beckwith, Rich et al. 2010). In an effort to assess the feasibility of rapid HIV testing within the jail as an alternative testing strategy, a rapid HIV testing pilot program was conducted at the RIDOC. To evaluate the rapid HIV testing pilot program from the institutional perspective, we conducted key informant interviews and focus groups with relevant RIDOC stakeholders. This mixed methods analysis examined the rapid HIV testing pilot program and explored provider and institutional stakeholder perspectives about the rapid HIV testing program.

Rapid HIV Testing Pilot Program at the Rhode Island Department of Corrections

The RIDOC is a centralized correctional system for the state that includes one jail and five prison facilities for males, as well as two women's facilities. In 2009, the men's jail facility had approximately 17,000 intakes, of which 54% were White, 25% African Americans, and 17% Hispanics (Rhode Island Department of Corrections Planning and Research Unit). The RIDOC standard HIV testing protocol includes a conventional HIV antibody test using a blood specimen obtained by venipuncture. The HIV antibody test is processed by the state laboratory and results are typically available in 7 to 14 days. A RIDOC nurse on the HIV care team notifies persons with positive HIV test results. Individuals are then linked to comprehensive HIV care in the RIDOC and to community care upon release. If a detainee with a positive HIV test is released prior to notification, the RI Department of Health is notified and an outreach worker is assigned to deliver the test result in the community in conjunction with post-test counseling and referral to HIV care. In a retrospective review of new HIV diagnoses at the RIDOC from 2000–2007, it was determined that 29% of those newly diagnosed were released within 48 hours and 43% were released within 7 days of incarceration. These individuals did not learn of their diagnosis while incarcerated, likely creating a delay in post-test counseling and linkage to HIV care (Beckwith, Rich et al. 2010). Similarly, the RIDOC has not been able to consistently deliver negative HIV test results given the rapid turnover of the jailed population.

To ascertain whether rapid HIV testing could successfully be used as an alternative to conventional HIV testing during the intake medical evaluation to identify HIV-infected detainees earlier, we conducted a 12-month clinical pilot program of rapid HIV testing in the men's jail in collaboration with the RIDOC. The goals of the program were to: 1) introduce rapid HIV testing to the medical and security staff of the facility; 2) provide education and training for implementation of a rapid HIV testing program; and 3) develop a procedural algorithm for rapid HIV testing during the initial medical evaluation. The pilot program was

conducted at the RIDOC from September 2008 to September 2009, during which time rapid HIV testing was conducted one day per week in place of conventional HIV testing. Therefore, persons who completed an intake medical examination on a day when the pilot program was operating were offered rapid instead of conventional HIV testing. Detainees were informed of the rapid HIV testing process and individually provided informed consent for HIV testing. Prevention counseling was not routinely conducted during rapid testing. A rapid testing algorithm (Figure 1) that included the OraQuick® Advance HIV 1/2 rapid HIV test as the initial screening test using an oral specimen was utilized. To increase the feasibility of processing multiple rapid tests during the jail commitment process, groups of detainees who consented to testing self-collected oral specimens after receiving appropriate instructions from a staff member. Oral swabs were then processed in a private room. Detainees returned to a general holding area after specimen collection. Detainees who had a reactive rapid test were brought back to the medical clinic by a correctional officer in order to complete confirmatory testing. Detainees were frequently escorted in and out of the general holding area for medical care and other non-medical purposes so confidentiality was maintained during this process. Using a blood specimen obtained by venipuncture, both the OraQuick® Advance HIV 1/2 rapid HIV test and the Clearview® HIV 1/2 Stat-Pak® rapid tests were processed and the specimen was sent to a state laboratory for confirmatory Western blot antibody testing. This testing algorithm was utilized given previous reports of false positive OraQuick® test results with oral specimens (Centers for Disease Control and Prevention 2008). Confirmatory HIV test results were delivered according to the protocol used for conventional HIV testing. Negative rapid HIV test results were not delivered to detainees and this was explained during the explanation of the rapid HIV testing procedures. Detainees were provided with contact information to call a staff member to confirm that their rapid HIV test was negative and they could request results through the RIDOC nursing staff. Rapid HIV test results, and confirmatory test result, were entered into the medical records of all detainees.

METHODS

During the pilot, a study team member collected de-identified data including the number of detainees who were offered rapid HIV testing; the number of detainees completing rapid testing; and the results from HIV testing were recorded. Data from the rapid HIV testing pilot program was entered into an Excel database. The rapid HIV testing pilot program data was summarized to determine the number and proportion of detainees who: 1) opted out of testing; 2) completed rapid testing; 3) had a reactive rapid HIV test; 4) had confirmed HIV infection; 5) were newly diagnosed with HIV infection; and 6) tested positive for HIV infection but had previously identified HIV infection.

Qualitative Analysis of Institutional Perspectives

In addition, to evaluate the rapid HIV testing pilot from an institutional and health care provider perspective, we conducted key informant interviews and focus groups with relevant RIDOC stakeholders. The Miriam Hospital Institutional Review Board and the Medical Research Advisory Group at the Rhode Island Department of Corrections reviewed and approved the qualitative research protocol. All RIDOC employees participating in an interview or focus group were compensated \$25 for their involvement in the qualitative study.

Key Informant Interviews—We identified six key informants, including physicians who provided HIV care to inmates within the RIDOC, senior members of the medical and nursing staff of the RIDOC, and staff members directly involved with the rapid testing program. All key informants agreed to participate in semi-structured interviews and

provided verbal consent for participation. Interview guides were developed and used to focus the interviews on the following topics related to the rapid HIV testing program: overall opinions and experiences, benefits, challenges, barriers to expansion of the program, linking inmates to HIV care, and perceived roles of staff in a hypothetical expansion of the rapid HIV testing program. Interviews were conducted in private locations selected by the key informants and lasted between 15–60 minutes. Key informant interviews were digitally recorded, with the exception of one participant who did not consent to recording of the interview. In this case, detailed notes were taken by hand throughout the interview and an executive summary was prepared immediately following the discussion.

Focus Group—Correctional staff at the RIDOC jail that included security, medical, and social work staff, were invited to participate in a focus group that explored staff experiences with the rapid HIV testing program. Focus group members did not participate in the key-informant interviews. To be eligible for the focus group, participants had to have worked a minimum of two shifts in the jail when the rapid HIV testing was being administered and must have had direct participation in the program or had contact with detainees who were offered rapid HIV testing. A total of six RIDOC staff members participated in the focus group and verbal consent was obtained from all participants. A semi-structured agenda was used to lead the discussion. Topics discussed included: overall opinions and experiences related to the rapid HIV testing program; the impact of rapid HIV testing on security, medical evaluation, safety, and inmates; benefits of the rapid HIV testing program; challenges of the rapid HIV testing program and barriers to expansion of the program; linkage to HIV care; and perceived roles of staff in a hypothetical expansion of the rapid HIV testing program. The focus group was conducted in a private room at the RIDOC, lasted for approximately one hour, and was digitally recorded.

Data Analysis—All digital recordings were transcribed and an *a priori* coding scheme was developed. The transcripts were double-coded by two trained researchers to enhance the validity of the results. Discrepancies in coding were discussed and resolved among the analysts. Care was also taken to identify additional themes that emerged during the coding process. As transcripts were coded, illustrative quotes relevant to these themes were extracted, and interviews were reviewed to identify subcategories within the initial coding groups. Thematic data summaries were created in an interactive process as transcripts were coded. Individual codes/themes were further summarized and interpreted following the coding of all transcripts.

RESULTS

Summary of the rapid HIV testing pilot program

The results of the rapid HIV testing pilot are summarized in Table 1. A total of 1364 detainees were offered rapid HIV testing through this pilot program, and 98% accepted and consented to testing. Twelve of the initial rapid HIV tests with oral specimens were reactive. Of these, eleven detainees were later identified as persons with previously known HIV-infection. One individual was newly diagnosed with HIV. Additionally, one detainee with a non-reactive rapid test later told medical staff he was HIV-positive. Based upon RIDOC medical records, he was confirmed as HIV-infected and as being on highly active antiretroviral therapy. A repeat OraQuick® test with an oral specimen was non-reactive but rapid HIV testing with both the OraQuick® and Clearview® tests using blood specimens were reactive. Therefore, this was concluded to be a false-negative rapid HIV test related to the oral mucosal transudate specimen.

Institutional Perspectives on the Feasibility and Acceptability of the Rapid HIV Testing Program

Overall Experience with the Rapid HIV Testing Program—Key informant interview and focus group participants overwhelmingly reported positive experiences and opinions about rapid HIV testing at the correctional facility and preferred the rapid testing model to the conventional testing program in place on other days of the week. Benefits were identified at the staff, system, and inmate levels and were frequently related to the use of oral specimens in place of standard phlebotomy.

Impact on Inmate Behavior—All correctional staff participants reported noticing a vast improvement in inmate attitudes and cooperation during the jail intake medical evaluation on days when rapid HIV testing was in place. This facilitated obtaining medical histories during the commitment medical evaluation.

They were definitely a lot more compliant with it; they're more willing to get it done, as opposed to getting their blood drawn.

[There was] less aggression on the inmates' part. They were so thrilled that we weren't drawing blood.

There's a lot better attitude with the HIV swabs. A lot easier to get information from them afterwards because they didn't have such a bad attitude with us. [The rapid HIV test changes] their whole demeanor.

Participants believed inmates preferred the rapid oral swab to the traditional blood tests because it was less invasive. Several participants noted that many detainees were afraid of needles or have difficult venous access that may make the conventional blood draw uncomfortable, painful, or not feasible.

I would definitely think (inmates prefer) the rapid, because they don't have to have their blood drawn. I would say nine out of ten people say "I hate needles" and tense up and freak out, and some people are really upset by it.

Impact on Safety and Security—Respondents reported a direct correlation between use of the rapid HIV test and increased perceptions of safety among the staff at the jail. Specifically, the use of oral specimens was viewed to be a safer, more efficient, and more acceptable process for HIV testing at the time of commitment.

[In the] jail population, I think it would be preferable to do the oral. Wherever there's less risk of blood exposures, you don't have to use the lancets, so I think that would be the benefit of that.

Many correctional staff participants reported feeling safer because their risk of needle-stick injuries and exposure to blood borne pathogens were reduced as a result of the rapid test process.

They (nursing staff) like it a lot because obviously they don't have to worry about getting stuck by needles. The inmates are less agitated. The corrections officers like it for the same reason. Because when they're less agitated, there's less chance that they're going to have a security issue.

A lot less stress...It's safer. You have guys that are so paranoid of needles they're jumping all in the chair and there's a risk of a nurse being stuck.

Impact on Workflow and Workload—Almost all participants reported that the rapid HIV test streamlined the commitment process, was less staff-intensive, and reduced

workload. Particularly, having groups of detainees swab their own mouths simultaneously made the commitment process faster and more time-efficient.

From what I've heard from the staff nurses that were actually on the ground doing it, it kind of streamlined the process. Because instead of having the inmate sit there and get their blood drawn, now it was getting 10, I think it was approximately 10–12 inmates lined up. You could swab their mouths and then once the test was developed, they're done. You know, in that amount of time it takes you to do 2 or 3 inmates of drawing their blood. So it actually got through quicker.

One nurse specifically noted the benefit of the rapid HIV test using oral specimens as compared to rapid tests that rely on whole blood collected through finger sticks.

I know it's probably negligible in the grand scheme of time, but if she's got to process 30 guys, it's easier to let 30 guys swab themselves and just run down the line and collect the swabs, than have to sit there and finger stick every person.

Another participant discussed how using the oral rapid test eliminated the need for staff to count and secure needles before and after shifts, thereby reducing their workload.

I think that it may be less of a responsibility for them (the security staff) to supervise the sharps, the needles, the movement there.

Focus group participants also reported experiencing a learning curve over the course of the pilot program in regards to how to best prepare for and administer the rapid HIV tests in the commitment environment.

It worked well. I think we did enough to make it work well. Like, at first it was a learning curve for all of us. Like, how should we do this? And we tried to just do a few at a time. It was like nope, it works better if we batch them... We just, we had it down to a science. I think what we did was good. It worked well.

Benefits and Challenges Related to HIV Test Result Delivery—All respondents agreed that immediate access to HIV test results is the key advantage and benefit of a rapid HIV testing program within jails. Detainees with reactive tests could complete confirmatory testing and be linked to appropriate HIV care and discharge planning services more expeditiously than when completing conventional HIV testing. This was noted as a distinct benefit in the jail setting, where time of release can be unpredictable and inmates may leave the correctional facility within hours or days, prior to the availability of conventional HIV test results.

We might get 40 [new detainees] tonight, and tomorrow maybe only 20 of them are still here. Even if they're treatment isn't initiated at the [RIDOC], at least they're given the opportunity to say "this is the clinic you should go to." So I think their care out in the community is better also; they could be walking around positive and not even know it.

Obviously the sooner you deliver the results the less chance that somebody would get out and not get, not have a follow up.

Multiple respondents discussed the context of the commitment process and the competing issues detainees are faced with during that time. The delivery of positive results within hours of incarceration was seen as an additional stressor to detainees during a chaotic period, but this potential risk was perceived to be outweighed by the benefit of completing the testing and result delivery process.

Ideally, (results should be) delivered right away, once they're done. Not so much because that's the optimal time to give that news. In fact, it may not be necessarily

the optimal time, if they've just been incarcerated...(they) may be upset about other things. They may be distraught, they may not be thinking clearly, they may be in withdrawal, they may have...uncontrolled psychiatric disease. So it may not be the optimal time, but you know, to me, much more important is that the test actually gets done and the information gets communicated. So rather than focusing on when would be the ideal time, the ideal is anything but, you know, missing them. 'Cause I think that's a much more important problem.

Participants also expressed system-level considerations related to result delivery. One respondent noted:

One visit within corrections is inherently more efficient than two visits, because a visit in corrections involves moving people. And moving people in corrections takes a lot of time. Or it involves going through facilities, and going through facilities takes a lot of time. So movement of both professional personnel and inmates within corrections is inherently inefficient.

There was no consensus among respondents regarding which staff members should be responsible for delivery of test results. Responses to that line of questioning ranged from lay persons with training to nursing or social work staff, health educators, the HIV care team, or physicians. Explaining why he believed nursing staff or social workers should be responsible for result delivery, one respondent commented that *"Physicians aren't there as regularly, as frequently as the... nursing staff."* However, nursing personnel felt that physicians or the HIV care team at the RIDOC should provide results because *"they (detainees) have a lot of questions that we can't answer."*

I've had nurses that have released blood test results and it turns into a nightmare because you don't have all the information....Telling someone they have a positive HIV test: "how long am I going to live? What kind of medication should I take? How long do you think I've had it?" You can't answer any of those questions. So if you're not able to answer them, we shouldn't be giving out any of those results. That's why it's really in the realm of the physician I believe.

Other comments focused how the person delivering results can impact the experience of detainees.

The important thing is (results have) to be given by somebody that's already integrated in the system. If you choose the perfect person that's in the community that's got just the right approach but they can only do it only two hours a day, which is what a lot of systems do, you in essence deny the vast majority of individuals the opportunity to get an HIV test result.

Confidentiality concerns are always an issue at intake, especially if there is potentially one person designated as giving negative results and someone else is positive results. That's why I think it should probably be the same person who's doing both so that they're not just identified as the HIV person.

Incorporation of Counseling in the Rapid HIV Testing Program—There was also variability in opinions expressed about the extent of counseling that should be provided in the context of a rapid HIV testing program and the methods through which pre- and post-test counseling and HIV education should be conducted. During this rapid testing pilot, prevention counseling was not delivered during the testing procedure but most respondents commented on the need and opportunity for counseling of not only HIV-infected persons, but also those with negative test results.

It would be their opportunity to say ‘Okay, you’re negative now, you need to remain negative, and this is what you can do to remain negative. You don’t share needles.’ And some kind of education like that. Because there’s always that concern when you say ‘you’re negative,’ it’s like ‘oh cool, I can just keep doing what I was doing.’ No, not necessarily. You know, you just dodged a bullet, this time.

Even though desire for the incorporation of HIV education and individualized counseling was expressed by many participants, there were mixed perceptions of the feasibility of both pre- and post-test counseling during the commitment process and it was recognized that counseling all persons may be a barrier to testing.

I would like in a perfect world to sit down and do one-on-one prevention counseling and prevention case management with everybody that’s negative, but it’s not feasible. People that are positive need intensive services immediately. People that are negative, it needs to be done in a relatively efficient fashion that’s feasible and which can be integrated in. And the question is how do you do that? And that is, that is what’s really challenging.

The timing of counseling relative to testing and intake was frequently mentioned and debated. While the advantages of providing counseling immediately after entry include the opportunity to engage most detainees, several participants expressed barriers to conducting counseling at that time. Speaking of the experience of inmates, one respondent commented:

They’ve had a bad day. Let’s appreciate this. Whatever the crime was, they’ve had a bad day. Not the time to sit down in a room and let’s talk for an hour about, you know, preventing HIV in the community—they are not going to listen to you.

Expansion of Rapid HIV Testing Upon Jail Entry—The positive experiences and opinions expressed for the rapid HIV testing pilot program led most respondents to voice support for expanding rapid HIV testing using oral specimens in place of conventional HIV testing upon jail entry. Several participants explained that rapid HIV testing has the potential to be more efficient within the correctional setting, but multiple participants expressed that in order for the rapid HIV testing program to be sustainable, the correctional facility would need to independently administer the program. Several nurses discussed their desire for expansion of the program:

We like it. We wanted it 7 days a week. We did.

There was nothing bad about [rapid testing] at all. It was just a way to figure out a way to implement it so the RIDOC would accept it so we could actually get it in here as something that we normally use, not just a test case.

Another respondent discussed the need for the medical staff and administration at the correctional facility to support the program.

If it can be done rapidly and easily, I think you can get buy in to the medical staff to do it themselves. If it’s not done rapidly and easily and they don’t like how it’s being done, they won’t do it. And you need leadership too.

There also was no consensus on the roles that various categories of staff would play in an expanded rapid HIV testing program, particularly related to coordination and distribution of tests, and result delivery and counseling. However, many participants also noted that additional training related to HIV infection, testing procedures, and counseling would be necessary for the correctional facility staff to operate the program.

Barriers to expanding rapid HIV testing at commitment reported by respondents included both inmate-level and institutional-level concerns. Multiple respondents mentioned the hectic period of commitment, and the desire to minimize additional stressors and maximize attention to the HIV testing and counseling process. Two participants noted that the physical structure of the intake facility made testing difficult due to space limitations; and multiple respondents expressed concerns surrounding confidentiality given persons are processed through the intake medical evaluation in groups. As one respondent discussed:

I think the biggest barrier (to expansion) is just the test result delivery. But actual procedural stuff, I think it could probably just very well happen and it wouldn't be a big deal.

The most frequently described institutional hurdles were the resources, both financial and human, required to expand the rapid HIV testing program within the facility and include HIV testing, result delivery and counseling, and record keeping and quality assurance.

The major issue is financial. I think the...administrators, nursing, medical personnel that I've talked to...understand that this is an important service that should be done, and ...are happy to do it as long as they have the resources, the time, the personnel.

DISCUSSION

We successfully conducted a rapid HIV testing pilot program within the RIDOC jail. Ninety-eight percent of the persons who presented for the initial medical intake and were offered rapid HIV testing completed testing. This testing rate is significantly higher than rates of conventional HIV testing completed at the RIDOC jail and rates observed in other jail facilities that offer rapid HIV testing. A recent analysis of the conventional HIV testing program at the RIDOC demonstrated that an estimated 70–80% of males admitted to the jail completed conventional HIV testing (Beckwith, Rich et al. 2010). A recent study that examined rapid HIV testing offered during jail intake in New York City reported that 69% of admissions completed testing (Begier, Bennani et al. 2010). The high testing rate observed during this rapid HIV testing program may be attributable to a longstanding culture and commitment to HIV testing within the RIDOC jail. Therefore, persons who have previously been incarcerated at the RIDOC are likely to be familiar with the HIV testing procedures upon entrance to the jail. Moreover, rapid HIV testing using an oral swab further reduced barriers to completing HIV testing by eliminating venipuncture from the medical evaluation.

Only one detainee, representing 0.07% of those tested, was newly diagnosed with HIV infection during the pilot program. This rate of new HIV diagnoses is below the threshold of 0.1%, which is recommended by the CDC as the minimum rate to justify routine opt-out HIV testing for a medical setting (Centers for Disease Control and Prevention 2006). However, this was a limited pilot study that was not designed to estimate the true diagnosis rate of newly identified HIV infections. A more comprehensive review of the RIDOC HIV testing program supports routine opt-out HIV testing in this setting (Beckwith, Rich et al. 2010). In addition, providing testing and linkage to care services to individuals who may otherwise have no access to health services by routinely offering rapid HIV testing upon entrance to jail can have benefits beyond identifying persons with previously unrecognized infection. As observed in this program, some persons with known chronic HIV infection chose not to disclose their HIV-positive status at the time rapid HIV testing was offered. Eight individuals completed rapid testing and then disclosed their infection to RIDOC medical staff. Three individuals completed rapid testing and confirmatory testing and were identified as persons with known HIV infection who had been incarcerated at the RIDOC

previously. In these cases, the rapid HIV test enabled the medical staff to identify these persons earlier in the incarceration than would have been possible if these persons did not disclose their HIV-positive status and completed conventional HIV testing. While linkage to HIV care was not assessed during this program, early identification of HIV-infected detainees provides an opportunity for the medical staff to assess whether a detainee is engaged in HIV care in the community. Persons who are not engaged in care can receive dedicated case-management services designed to facilitate linkage to community HIV care and other supportive services prior to their release. This is an often unrecognized benefit of routine rapid HIV testing programs for jailed populations.

The evaluation of the rapid HIV testing program revealed that rapid HIV testing was almost uniformly preferred over conventional testing among key stakeholders and correctional staff. All key informants and focus group participants agreed that oral specimen rapid HIV testing was preferred over testing methods that require phlebotomy. Moreover, providers commented that inmates also overwhelmingly preferred rapid testing over venipuncture. Staff believed that collecting oral specimens would markedly diminish the risk of needle-stick injuries and exposure to blood-borne pathogens during HIV testing. While confirmatory testing with a blood specimen is still needed when there is a reactive rapid HIV test, based upon the data from this pilot program, the number of persons that require phlebotomy is substantially decreased when the initial HIV test is conducted with an oral specimen. In addition, using oral specimens increased the cooperation of the detainees undergoing HIV testing, which led to a perception of increased safety among the correctional staff and facilitated the process of taking medical histories. Providers also highlighted reduced clinical workload associated with collecting and processing samples from multiple detainees simultaneously. While this method appeared to maximize feasibility during the busy jail intake, it is necessary to maintain the confidentiality of rapid HIV test results and to protect the autonomy of the detainee when HIV testing is voluntary. With the reduction of phlebotomy and specimen processing, rapid HIV testing may also provide a cost savings compared to conventional testing but further research is needed.

The performance of the OraQuick® rapid HIV test using an oral specimen was consistent with the reported sensitivity and specificity in a previous report (Delaney, Branson et al. 2006). We did not have any false positive test results which helped alleviate concerns with using oral rather than blood specimens. However, we did have one false negative rapid test that was processed with an oral specimen in a detainee with well-controlled HIV who was taking HAART. False negative rapid HIV tests have been reported among individuals on HAART due to seroreversion of anti-gp41 antibody (O'Connell, Merritt et al. 2003).

During the pilot program, we were not able to deliver rapid HIV test results immediately to detainees. Detainees were informed that unless notified, they could assume that their rapid HIV test was negative and detainees had the option of calling a staff member to confirm the negative result or request the result through nursing. Persons with reactive rapid HIV test results were notified within 24 hours of testing by the HIV clinical nurse. Future implementation research should examine the feasibility of real-time result delivery in order to reduce the number of persons who are released from jail prior to learning of their test result. Evaluation participants agreed that both reactive and non-reactive rapid test results ideally should be delivered to detainees, but there was not consensus on who should deliver test results and when and where these results should be delivered. Jail medical staff members were resistant to assume responsibility for delivering rapid HIV test results during the intake process, yet there was a suggestion that further training with respect to HIV testing may facilitate the delivery of rapid HIV test results in real-time.

There were several limitations to this research. The pilot program was designed to be a clinical service provided within the RIDOC, and not a research study; therefore, limited data was available on the jailed population that completed rapid HIV testing. The qualitative findings are based on the experiences, opinions, and knowledge of the evaluation participants. While these individuals were recruited because they were key stakeholders and staff directly involved in the implementation of the rapid HIV testing pilot program, their views may not be representative of all correctional staff at the RIDOC or in other settings. In addition, social desirability bias may have led some respondents to self-censor their actual views, especially in the group setting. The rapid HIV testing pilot program was only conducted in a male jail facility, so we were unable to evaluate rapid HIV testing among incarcerated women. As mentioned, this study did not evaluate inmate perspectives, which is critical to developing acceptable HIV testing programs within correctional facilities, however, the high acceptance rate of testing during this program is suggestive that inmates support rapid testing. Additionally, further research in facilities with high HIV prevalence is needed to assess if rapid HIV testing in jails results in faster linkage to HIV care both inside the correctional facility and in the community after release compared to conventional HIV testing.

Offering HIV testing in correctional settings is a public health opportunity, and can expand HIV testing among high-risk populations who otherwise may have very limited access to health services. The vast majority of persons entering the RIDOC jail at the time of the rapid HIV testing pilot program completed testing during the intake medical evaluation. Rapid HIV testing was feasible and was preferred by the correctional health care providers and staff compared to conventional HIV testing. The use of rapid HIV testing with oral specimens can streamline HIV testing procedures during intake and can foster safety within the jail by reducing the need for syringes. Delivering rapid test results to detainees in real time remained a challenge. Furthermore, optimal methods of HIV counseling for high-risk persons incarcerated in jail need to be developed and successfully integrated into HIV testing procedures. We believe these findings and future work among jailed populations will contribute to the improved delivery of HIV services to one of our nation's most disenfranchised populations.

Acknowledgments

We acknowledge the support and participation of the Rhode Island Department of Corrections staff.

Sources of Support This research was supported by a Testing and Linkage to Care Grant from Gilead Sciences, Inc; the Lifespan/Tufts/Brown Center for AIDS Research (P30AI42853); and the Tufts Nutrition Collaborative, a Center for Drug Abuse and AIDS Research (P30DA013868). CGB received support from the National Institute on Drug Abuse (K23DA021095). None of the aforementioned agencies had any role in study design; in the collection, analysis and interpretation of data; in the writing of the report; or in the decision to submit the paper for publication.

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Figure 1.
Rapid HIV testing algorithm

Table 1

Summary of the RIDOC pilot program HIV testing results

INMATES OFFERED TESTING	N (%)
Number of detainees offered rapid HIV testing	1364
Number (percentage) of detainees who completed rapid HIV testing	1343 (98%)
Mean number of rapid HIV tests completed per testing day	22
TEST RESULTS	
Number (percentage) of detainees with reactive rapid tests (initial OraQuick® test)	12 (0.8%)
Number of detainees with confirmed HIV infection	12
Number of detainees who disclosed HIV-positive status after rapid testing	8
Number of detainees who had chronic HIV infection but did not disclose their status after HIV testing	3
Number of detainees newly identified as HIV-infected	1
Number of false positive rapid HIV tests	0
Number of false negative rapid HIV tests	1
Number of detainees who disclosed HIV-positive status during medical questionnaire and were not tested	2