10th NIJ/CDC National Survey of Infectious Diseases in Correctional Facilities

Tuberculosis Screening, Treatment and Education

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Prepared for
Marilyn Moses
National Institute of Justice
U.S. Department of Justice
Washington, D.C.

Roberto Hugh Potter
Centers for Disease Control and Prevention
Atlanta, Georgia

Prepared by
Theodore Hammett, PhD
Sofia Kennedy, MPH
Sarah Kuck

Internal Review

Project Director

Technical Reviewer

Management Reviewer

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1. Key Findings

Background

- The 10th CDC/NIJ National Survey of Infectious Diseases in Correctional Facilities was carried out by Abt Associates during 2005 with support from the National Institute of Justice (NIJ) and the Centers for Disease Control and Prevention (CDC).

- This series of national surveys was initiated in 1985 and conducted annually until 1990. Subsequent surveys were conducted in 1992, 1994, and 1996–97. Through 1992, the surveys covered only HIV/AIDS. From 1988 to 1992, some tuberculosis (TB) questions were included in the HIV/AIDS survey and, in 1994, sexually transmitted diseases (STDs) were added to the HIV/AIDS survey and a separate TB survey was carried out (with a separate TB report issued). The 1996–97 survey covered HIV/AIDS, STDs, and TB in the same survey and one omnibus report was issued. In 2005 a section on hepatitis A, B and C was added as was a section on disease reporting and surveillance capabilities; the 2005 results will be presented as a set of disease-specific reports and one separate report on surveillance and reporting.

- From 1985 through 1990, the survey was funded entirely by NIJ. Beginning in 1992, CDC became a co-funder of the work. The 1996–97 update report also included the results of the Bureau of Justice Statistics' (BJS) 1996 survey of HIV/AIDS in prisons and jails.

- In 1996 CDC published "Prevention and Control of Tuberculosis in Correctional Facilities" recommendations of the Advisory Council for the Elimination of Tuberculosis (MMWR, 1996). These recommendations were three pronged, encompassing screening, containment and assessment.

Policies For Tuberculosis Screening of Inmates and Staff

- Ninety-four percent of the responding state/federal systems require mandatory skin testing for TB for all incoming inmates within two weeks of admission: one-third in the first 24 hours after admission. Only two systems have non-mandatory TB testing.
- All jails reported doing some TB screening, it is mandatory in three-fifths of the systems. Half the systems do mandatory testing within two weeks of admission. Fourteen facilities offer non-mandatory testing.
- Over 90 percent of the state/federal systems and 40 percent city/county systems conduct annual TB screening of all inmates.
- Two-thirds of the state/federal systems conduct chest x-rays on inmates known to be HIV-infected, but less than half of the city/county systems do so.
- All but three systems (two state/federal and one city/county) conduct TB tests on some staff when they are hired. Testing is mandatory in two-thirds of the state/federal systems and four-fifths of the city/county systems.

Tuberculosis Infection Among Inmates

- Positive tuberculin skin test (TST) results were reported for 37,282 inmates in 30 state/federal and 18 city/county systems in 2005.

Inmates Under Treatment for Tuberculosis Disease

- Twenty-three state/federal systems treated 436 inmates for TB disease and 23 systems reported treating no cases. Nineteen large jails treated 222 inmates for TB disease and 13 systems reported treating no cases.

Treatment for Latent Tuberculosis Infection (LTBI)

- Three-quarters of federal/state systems treat all inmates with LTBI, only two systems explicitly consider length of stay when starting treatment.
- Only one-fifth of the city/county systems base treatment decisions on length of stay and over half treat all LTBI-positive inmates.
- Ninety-eight percent of state/federal systems and 97 percent city/county facilities prescribe INH (isoniazid) for latent TB infection.
- Both respondent types had almost identical average time of treatment for HIV-negative (8.3–8.4 months) and HIV-positive (9.5–9.8 months) inmates. CDC recommends that HIV-negative TB patients be treated for 6-12 months and that HIV-positive TB patients be treated for 12 months, so systems are generally meeting treatment goals for HIV-negative inmates with TB, treatment duration falls short for HIV-infected inmates.

Discharge Planning and Education

- Ninety percent of state/federal and 85 percent city/county systems provide at least rudimentary information to inmates about TB and TB testing.
- Over 90 percent of state/federal systems offer discharge planning to inmates with TB disease and 85 percent offer it to inmates with LTBI. Almost 90 percent of inmates in those systems receive discharge planning for both TB disease and LTBI.
- Three-quarters of the city/county systems offer discharge planning for individuals with TB disease and almost two-thirds provide it to LTBI-positives. Eighty-eight percent reported that they reach three-quarters or more of inmates with TB disease. Seventy-five percent of the systems reach three-quarters of inmates with LTBI.
- Less than 60 percent of state/federal systems schedule community appointments for inmates with TB disease and only a third do so for inmates with LTBI. Nineteen percent of systems have department of public health staff come in to meet with inmates with TB disease and only 9 percent with inmates with LTBI.
- City/county systems generally do less than state/federal systems except in the area of bringing the department of public health into the facilities; half the jails engage public health services for inmates with TB disease and one-quarter for inmates with LTBI.

Collaboration With Departments of Public Health (DPHs) and Community-Based Organizations (CBOs)

- Some level of collaboration between the state/federal systems and DPHs on TB prevention and treatment is very common. When respondents were asked to rate the success of these collaborations three-quarters rated them as "very successful" and none as "not successful". Collaboration with CBOs on TB is not common; and less than half of the systems that collaborated rated the relationship as "very successful".
- All city/county systems reported collaborating with DPHs on infectious disease management of some type and all but two collaborate on TB services. These were considered "very successful" by four-fifths of systems and none considered them unsuccessful. Only slightly more than half collaborate with CBOs on any health issue and only one-quarter on TB. However, when jails do work with CBOs, over three-quarters were "very satisfied" with the collaboration.
- The three services that state/federal systems collaborate on with departments of public health most often are case reporting/surveillance, outbreak investigation and discharge planning.
- The three services that city/county systems collaborate on with departments of public health most often are case reporting/surveillance, discharge planning and treatment/prophylaxis.
- The most common areas of collaboration between state/federal systems and CBOs are staff training and inmate education; only 23 and 17 percent systems collaborate.
- One-quarter of city/county systems work with CBOs on staff training and inmate prevention and education activities and two-fifths on education.

2. Background, Survey History and Methodology

2.1. Background

In 1996 CDC published "Prevention and Control of Tuberculosis in Correctional Facilities" recommendations of the Advisory Council for the Elimination of Tuberculosis (MMWR, 1996). These recommendations were three pronged, encompassing screening, containment and assessment. We organize our discussion around these recommendations.

Overview of CDC Recommendations For TB Prevention and Control in Correctional Facilities:

1. **Screening**
   - Identify any inmate with TB disease or TB infection through medical history, tuberculin skin testing (TST) using the purified protein derivative (PPD) test or chest x-ray if necessary.
   - Test all inmates at intake and annually thereafter.
   - Test all staff when they are hired and annually thereafter.
2. **Containment**
   - Isolate and begin treatment for any inmate with active TB disease.
   - Evaluate and, when appropriate, treat any inmate with TB infection.
   - Treatment should be directly observed.
3. **Assessment**
   - Monitor and evaluate the assessment and containment activities.

These recommendations were issued at about the same time that the 1996–97 NIJ/CDC Survey was conducted, so the last survey gathered information on what systems were doing at the moment when they were determining whether, or in what way, to change their policies. Since the recommendations were issued, CDC has conducted at least one study to assess if correctional systems are following them (Reichard, Lobato, Roberts, Bazerman, Hammett); in 2000–2001 CDC and Abt Associates evaluated TB screening and management activities in 20 large jails. For this study, the medical records of 56 inmates who had recently been evaluated for TB disease and 376 inmates who were diagnosed with latent TB were reviewed. The authors of the study found that the completion and timeliness of screening, diagnostic and treatment measures needed improvement. Further, in order to understand truly how well jails are implementing TB management policies, electronic information systems to monitor inmate TB screening and care were needed.

The 2005 NIJ/CDC Survey assessed several aspects of the 1996 CDC recommendations. Given other studies looking at TB in jails and prisons, space constraints and a new focus on hepatitis in this survey, some of the elements of the recommendations were not included in the current survey.

In addition, a new test to diagnose TB infection, the QuantiFERON-TB Gold test, was approved for use by FDA in 2004 and in December 2005 CDC issued an MMWR and fact sheet on its use, including its use in correctional facilities. QFTG requires a blood draw and lab processing in twelve hours and does not require a second visit to be read; QFTG is recommended for use in correctional settings (CDC, 2006).

Unfortunately FDA approved the test after the 2005 survey had been developed and fielded so no data on its use were gathered.

2.2. Survey History

The 10th CDC/NIJ National Survey of Infectious Diseases in Correctional Facilities was carried out by Abt Associates during 2005 with support from the National Institute of Justice (NIJ) and the Centers for Disease Control and Prevention (CDC). This is the fourth survey in the series to cover Tuberculosis.

This series of national surveys was initiated in 1985 and conducted annually until 1990. Subsequent surveys were conducted in 1992, 1994 and 1996–97. Through 1992, the surveys covered only HIV/AIDS. From 1988 to 1992, some tuberculosis (TB) questions were included in the HIV/AIDS survey. In 1994, sexually transmitted diseases (STDs) questions were added to the HIV/AIDS survey; and a separate TB survey was carried out (with a separate TB report issued). The 1996–97 survey covered HIV/AIDS, STDs and TB in the same survey and one omnibus report was issued. In 2005 a section on hepatitis A, B and C was added, as was a section on disease reporting and surveillance capabilities; the 2005 results are presented as a set of disease-specific reports and one separate report on surveillance and reporting (see Appendix 1 for 2005 survey instrument).

From 1985 through 1990, the survey was funded entirely by NIJ. Beginning in 1992, CDC became a co-funder of the work. The 1996–97 update report also included the results of the Bureau of Justice Statistics' (BJS) 1996 survey of HIV/AIDS in prisons and jails.

2.3. Methods

The CDC/NIJ surveys have, from the beginning, gathered data on policies and practices in prison and jail systems related to the covered infectious diseases. The major areas of policy and practice addressed in the surveys have changed somewhat over time, but the primary domains include:

- Education and behavioral interventions;
- Precautionary and preventive measures;
- Testing, diagnosis, counseling, confidentiality, and disclosure of test results;
- Housing and correctional management;
- Medical care and psychosocial services;
- Discharge planning; and
- Legal and legislative issues.

From 1985 to 1994, the NIJ/CDC survey collected data on numbers of cases of AIDS and AIDS-related deaths among correctional inmates. However, the Bureau of Justice Statistics began conducting surveys of HIV/AIDS in prisons and jails in 1993 and so, as of 1996–97, the NIJ/CDC survey no longer collected data on numbers of HIV or AIDS cases to avoid duplication of effort. Beginning in 1989, the NIJ/CDC survey sought aggregate data on numbers of cases of TB disease and latent TB infection, and, beginning in 1994, aggregate STD testing data. For the first time in 2005, the NIJ/CDC survey requested aggregate data on hepatitis cases among correctional inmates.

From the beginning and in 2005, the NIJ/CDC survey was sent to the Federal Bureau of Prisons and all 50 state correctional systems and respondents were directed to report on all facilities in their system. The survey has also always been sent to the 50 largest city/county jail systems; these changed only slightly from 1996-97 to 2005, seven systems were different in 2005 (see Appendix 2 for 1996-96 and 2005 50 largest jails).

In 2005 a non-random convenience sample of five tribal, five small city jails and ten regional/rural systems were added to the sample to provide an indication of the practices and challenges faced by smaller facilities. As the small numbers suggest, the responses from this new group were intended to provide material for a more qualitative discussion of infectious disease management in these jails, and were not intended to be generalizable.

Historically, the survey was mailed to the commissioner of corrections or equivalent who then typically passed it on to the director of health services or other staff to complete various portions. In 2005 the system's Medical Director was the respondent and each was contacted by telephone prior to mailing surveys to confirm the contact information and to determine whether the Medical Director or someone else (e.g., an infectious disease nurse) was the best person to coordinate the completion of the survey. Responses were requested to cover all adult facilities in the system and respondents were asked to provide data for the most recently completed 12–month period (for the 2005 survey this was most commonly June 2003–June 2004). Beginning in 1994, we also conducted a parallel validation survey in which we sought responses to subsets of the questions related to policies and practices from samples of individual facilities in some states and the Federal system. All 50 state systems and FBOP were stratified by size and a set number of facilities was randomly selected within each.

Abt Associates staff followed-up by telephone to obtain questionnaires from non-responding systems and to inquire about missing or unclear items in completed questionnaires. From 1985 through 1996–97, we were able to obtain 100 percent response from the 51 state/federal prison systems and an average response rate of 80 percent from the city/county jail systems. However, ever increasing amounts of follow-up by telephone were required to obtain these high response rates. Over time, correctional health services departments have received more and more surveys and resistance has risen concomitantly. Even with many hours of telephone follow-up work in 2005, we were not able to achieve the previously high response rates.

2.3.1. 2005 Survey Response

Table 1 breaks down the response rates for each system type. The 2005 survey had a response rate of 79 percent for the three main respondent types (FBOP, state departments of corrections and large city/county systems), 45 percent for the three new respondent types (tribal, regional/rural and small city jails), and 16 percent for the validation survey. The discussion of prison and jail systems' policies in this report is, of course, limited to the activities of survey respondents.

Table 1

Survey Response Rates Across Systems

Respondents Type	Total	Surveys Submitted N	%
Federal Bureau of Prisons (FBOP)	1	1	100%
State Departments of Corrections	50	46	92%
Large City & County Jail Systems	50	33	66%
Subtotal	101	80	79%
Tribal Facilities	5	2	40%
Regional/Rural Jails	10	5	50%
Small City Jails	5	2	40%
Subtotal	*20*	*9*	*45%*
Validation (State Facilities)	50	8	16%
Total	171	97	56%

The distribution of the17 nonresponding jails was slightly skewed to the smaller jails; there were three jails in each of the top four quintiles (based on system size) and five jails in the fifth quintile. None of the four nonresponding state systems was among the largest quarter of systems, two were in the top half and two in were among the smaller half of systems (two were located in the south, one in the southwest and one in midwest). The final status of the 32 nonrespondents from the state departments of correction, the city/county systems and the tribal, regional/rural and small city jails is summarized in Table 2.

Table 2

Status of Survey Non Respondents: State Departments of Correction, the City and County Systems and the Tribal, Regional/Rural and Small City Jails (n=32)

Status	n	(%)	Description
Hard Refusal	4	18%	• Did not get approval to complete it. • The survey is voluntary. • "It's not important to us!"
Soft Refusal	12	35%	• The survey is voluntary. • We are very understaffed. • We are very busy / see a large number of inmates. • Health care vendor changed (data not available). • The survey is too long / difficult.
"Working on it"	7	21%	• Respondents reported that they were working on it up to the last round of follow-up calls.
No Contact With Respondent	5	16%	• Despite numerous calls, respondents could not be reached and did not return phone calls.
Exclude/Exempt	4	18%	• 2 facilities were in areas affected by Hurricane Katrina and were exempted from the survey. • 2 facilities were discovered to be operated by FBOP and excluded.

3 Tuberculosis Screening

Table 3 summarizes the policies for screening inmates for tuberculosis using the tuberculin skin test (TST) at admission and at regular intervals as well as the use of chest x-rays to screen inmates with HIV for TB.

Table 3

TB Screening Policies for Inmates

	State / Federal (n=47)				City / State (n=33)			
	Mandatory		Not Mandatory		Mandatory		Not Mandatory	
	n	%	n	%	n	%	n	%
Time after admission that all inmates are tested								
Within 1 Day	14	30%	0	0%	2	6%	0	0%
Within 2–7 Days	24	51%	2	4%	6	18%	2	6%
Within 8–14 Days	6	13%	0	0%	9	27%	2	6%
Screened (timing not specified)	1	2%	0	0%	2	6%	10	30%
Total	45	96%	2	4%	19	58%	14	42%
Regular Testing								
All inmates tested at regular intervals	39	83%	4	9%	9	27%	4	12%
Chest X-Rays								
Chest X-rays for HIV+	30	64%			15	45%		
Chest X-rays for HIV at-risk	6	13%			5	15%		
No Chest X-Rays	16	34%			18	55%		

3.2 Tuberculin Skin Testing (TST) of Inmates at Admission

CDC Recommendations For Screening Inmates For TB:

Long-term correctional facilities & short-term facilities housing populations at high risk for TB:

- Symptom screening as soon as possible after intake.
- Mandatory TSTs for all inmates who do not have a documented negative TB test result.

Short-term facilities housing populations at low risk for TB:

- Symptom screening for all inmates.
- TST for all inmates with symptoms.

As shown in Table 3, all but two of the responding state/federal systems require mandatory skin testing for TB for all incoming inmates within two weeks of admission: one-third in the first 24 hours after admission, half in the first week and 13 percent 8–14 days after admission. One system reported that they have mandatory testing, but did not specify when the testing occurs. Only two systems have non-mandatory TB testing. Prisons are clearly quite committed to timely mandatory TB testing for all inmates. All jails reported doing some TB screening; it is mandatory in two-fifths of the systems. Only half of the systems do mandatory testing within two weeks of admission—just two within 24 hours of admission, one-quarter 8–14 days after. Two-fifths of the jails have non-mandatory testing, most at an unspecified point after intake. One-third of the respondents did not specify how many days after admission screening occurs, and in almost all of these facilities testing is not mandatory.

Discussion

TB testing can present a challenge in jails since providers must wait 48–72 hours after placing the TST to read it, but many inmates are released within 24 hours of admission and a large number within 14 days. For this reason, TB screening in jails is less widely implemented than in prisons. However, given the risk of transmitting TB in the close conditions of jails and the high rates of TB among jail inmates, timely screening of all inmates is very important. Facilities serving short stay inmates must strike a balance between the competing demands of identifying inmates with a serious communicable disease and selecting inmates for testing that have a reasonable chance of still being in the facility 48 hours after the TST is placed; there will always be inmates who have left the facility without having their tests read (either because the were released before the test can be read or were still at the facility but could not be brought back to the medical unit in time for logistical reasons).

3.2 Annual Tuberculin Skin Testing Screening of Inmates

CDC Recommendation For Repeat Screening Inmates For TB

- Annual testing of all long-term inmates in prison and jail settings.

Table 3 shows that over 90 percent of the state/federal systems conduct annual TB screening of all inmates; it is mandatory in all but four of them. Regular screening is less universal in jail systems; only 40 percent of responding systems do it.

Discussion

Given the high turnover and shorter lengths of stay this may be appropriate, however there should be a systematic effort to identify inmates who are incarcerated in jails for over one year and test them.

3.2 Use of Chest X-rays To Screen HIV-infected and At-risk Inmates For Tuberculosis

CDC Recommendation For Screening HIV-Infected Inmates For TB

- All inmates known to have, or suspected of having, HIV should be given a chest x-ray instead of a TST at admission.

Inmates with HIV are at higher risk for contracting TB than the general population and TB poses a greater risk to their already compromised health, so CDC recommends that facilities identify and treat both TB disease and latent TB infection (LTBI) in this population. Making a TB diagnosis is complicated by the fact that the TB skin test is less reactive in people with compromised immune systems. For these reasons, chest x-rays are the preferred screening tool for TB, rather than the TST, in this population.

As shown in Table 3 two-thirds of the state/federal systems conduct chest x-rays on inmates known to be HIV-infected and six of these (13% of the total) also perform chest x-rays on inmates with known risk factors for HIV. Less than half of the city/county respondents perform chest x-rays on HIV-infected inmates and only five of these (15% of the total) on inmates at risk for HIV.

Discussion

These low rates of compliance with the CDC recommendations for screening HIV-infected inmates, especially in jails, and at-risk inmates in all systems indicate that TB disease in this group may not be being identified. Given the high rates of HIV among inmates, it is crucial to have appropriate screening policies in place for TB.

3.2 Tuberculosis Screening of Correctional Facility Staff

CDC Recommendation For Screening Staff For TB

- TST screening should be conducted when hired and annually for all correctional facility staff.

As shown in Table 4 as significant minority of systems (13 percent of state/federal and 12 percent of city/county) did not report their policies for testing staff for TB at hiring. All but three systems (two state/federal and one city/county) that did report conduct TB tests on at least some staff when they are hired. Over three-quarters of the state/federal systems conduct TB tests on staff when they are hired, testing is mandatory in about three-fifths of the systems. Eighty-two percent of city/county respondents conduct TB tests on new staff and in all but one jail, testing is mandatory. A few prisons and jails test selected staff only (e.g., health workers).

Table 4

TB Screening Policies for Facility Staff When Hired

	State & Federal (n=47)				City & County (n=33)			
	Mandatory		Not Mandatory/ Not Specified		Mandatory		Not Mandatory/ Not Specified	
	n	%	n	%	n	%	n	%
All Staff	29	62%	7	15%	26	79%	1	3%
Health Services Staff Only	1	2%	0	0%	1	3%	0	0%
Other Staff Only	1	2%	1	2%	0	0%	0	0%
Total	31	66%	8	17%	27	82%	1	3%
No Screening	2	4%			1	3%		
Not Reported	6	13%			4	12%		

Prisons, in particular do not adhere to the CDC recommendation of universal mandatory testing of staff at hiring. Jails are doing slightly better, but this is an area where facilities could improve. Respondents were not asked their policies for annual TB screening for staff.

4 Tuberculosis Infection Among Inmates

Tuberculosis infection rates for responding systems were calculated as a ratio of the number of reported positives over the number of reported tests, not over the annual or average daily population because screening policies and, more importantly, data reporting varied across systems and especially between state/federal and city/county systems. Table 5 shows the number and percent of systems with TB positivity rates in each range (e.g., 5–9.99%) and the total number of cases of TB of infection in all facilities. Among the respondents reporting both the number of tests and the number of positives, none found zero cases of TB infection, indicating that regular testing leads to the identification of new cases. The number of facilities for which the rate could not be calculated is presented as well because a large number of systems did not report either the number tested, the number positive or both so their positivity rate could not be calculated.

Table 5

Tuberculosis Infection Among Inmates: July 1, 2003-June 30, 2004[1]

	State & Federal						City & County					
	2005 (n=47)			1997 (n=51)			2005 (n=33)			1997 (n=41)		
% Positive	Systems		Cases	Systems		Cases	Systems		Cases	Systems		Cases
	n	%	n	n	%	n	n	%	n	n	%	n
<5%	28	60%	17,287	20	39%	6,512	6	18%	1,064	9	22%	6,117
5–9.99%	2	4%	4,985	3	6%	7,200	9	27%	7,875	11	27%	8,162
>10%	0	0%	0	1	2%	1,283	3	9%	6,071	5	12%	16,165
Did not report	17	36%	--	27	53%	--	15	45%	--	16	39%	--
Total			22,272			15,033			15,010			30,539

[1]Or other 12 month reporting period.

Respondents were asked to provide data for the most recently completed twelve month reporting period, which was most commonly July 1, 2003–June 30, 2004. In total 37,282 positive TST results were reported in 30 state/federal and 18 city/county systems. A larger proportion of the respondents reported the number of positive cases in 2005 than reported in 1997 (64%, up from 47%).

Respondents were asked "How many different inmates in your system have been skin tested?", however this does not control for double counting across jail and prison systems and there is still a possibility that some inmates were counted twice if they were tested at intake and during annual testing if the system does not have a method for detecting and eliminating duplicate tests.

In 2005, as in 1997, most of the federal/state systems that reported results have relatively low (5% or less) rates of TST-positive inmates, three-fifths and two-fifths respectively. However in both years there were a few systems with much higher (5–10%) infection rates. In 2005 two systems accounted for almost one-quarter (4,985) of all TB infections. No systems had a positivity rate of more than 10 percent.

In contrast to the state/federal systems, fewer city/county respondents reported results in 2005 (55%) compared to 1997 (61%). One reason for this may be that mandatory testing is not the norm so data may not be available on all inmates. Among facilities that did report results, positivity rates are high: in over one-quarter of the jails 5–10 percent of the inmates are TST-positive and in almost one tenth, over 10 percent are positive (three jails held two-fifths of all cases). At all infection prevalence levels, in jails there were fewer cases of TB infection reported in 2005 than in 1997.

5 Tuberculosis Treatment

3.2 Inmates Under Treatment for Tuberculosis Disease

CDC Recommendations For Treating TB Disease

- Current American Thoracic Society/CDC recommendations should be followed for the treatment and management of persons who have suspected or confirmed TB disease.
- All inmates being treated for active TB disease should be on DOT to ensure adherence to therapy.

Respondents were asked how many inmates were under treatment for TB disease at the time that they completed the survey, but not the number of inmates diagnosed with TB disease during a time period. However, given the nature of TB disease, it can reasonably be assumed that most if not all of the inmates with a positive diagnosis of TB disease were being treated, especially in state/federal systems. Table 6 shows the number and percent of systems/facilities with positive cases and the number of inmates being treated for TB disease.

Table 6

Inmates Under Treatment for TB Disease at the Time of the Survey

	State & Federal						City & County					
	2005 (n=47)			1997 (n=51)			2005 (n=33)			1997 (n=41)		
	Systems		Cases	Systems		Cases	Systems		Cases	Systems		Cases
Number of Inmates	n	%	n	n	%	n	n	%	n	n	%	n
0	23	49%	--	12	24%	--	13	39%		13	32%	--
1–10	18	38%	55	15	29%	52	13	39%	44	17	41%	51
11–50	4	9%	98	5	10%	94	5	15%	97	4	10%	117
51–100	--	0%	--	1	2%	74	1	3%	81	2	5%	33
>100	1	2%	283	2	4%	247	--	0%	--	--	0%	--
Total	46	98%	436	35	69%	467	32	96%	222	36	88%	201
Not reported	1	2%	--	16	31%	--	1	3%	1	5	12%	--
Inmates Treated for Drug Resistant TB												
	5	11%	8 (2%)			35 (7%)	3	9%	3 (1%)			29 (10%)

In 1997 almost one-third of the state/federal systems did not report the number of inmates undergoing treatment for TB disease, in 2005 all but one system reported. Twice as many systems reported that no inmates were being treated for TB disease in 2005 than in 1997. So, while, more systems reported their results in 2005, most reported not treating any inmates. In 2005, 436 inmates were treated for TB disease in 23 state/federal systems and, as in 1997, most systems treating any TB cases were only treating a few, generally less than ten. However, most of the TB cases under treatment were in five systems, two-thirds in one system and almost one-quarter in four others.

As with the state/federal respondents, all but one of the city/county systems reported the number of inmates being treated for TB disease. In 2005, 222 inmates were treated for TB disease in 19 large jails. Two-fifths of the respondents were not treating any inmates for TB disease and another two-fifths were treating less than ten inmates. These patterns are consistent with the 1997 results, except that more 1997 more respondents did not report. Five state/federal and three city/county systems were treating only 11 cases of drug resistant TB in 2005. This was a dramatic decrease from the 64 cases treated in 1997.

The current survey did not include a question related to whether TB treatment was administered via directly observed therapy.

3.2 Treatment Policies for Latent Tuberculosis Infection (LTBI)

5.2.2 Groups Treated For Latent Tuberculosis Infection

CDC Recommendation For When to Treat LTBI

- Inmates diagnosed with LTBI should only be treated if they will be able to complete at least a six-month course of treatment

LTBI-positive persons in the following groups should be evaluated for preventive therapy*:

- HIV-positive with a positive skin-test result.
- At-risk for HIV infection with a positive skin-test result.
- Close contacts of a person with infectious TB and a positive skin-test result.
- Chest-radiograph findings suggestive of previous TB who have received inadequate or no treatment.
- Injecting-drug users known to be HIV negative.
- Having a medical condition known to increase the risk for TB disease.
- TST result converted from negative to positive within the preceding 2 years.

* The recommendations also included the size of the induration of the result.

Table 7 shows which inmates are treated for latent TB infection (LTBI).

Table 7

Treatment Policies for Latent TB Infection

	State & Federal (n=47)		City & County (n=33)	
	n	%	n	%
All TST-positive	35	74%	17	52%
Expected minimum stay*	2	4%	6	18%
HIV-positive and TST-positive *	6	13%	7	21%
Close contacts of TST-positive inmates*	5	11%	4	12%
Recent converters (within 2 years)*	7	15%	7	21%
No systematic policy*	2	4%	6	18%
Other*	2	4%	2	6%

*Not counted in "All TST-positive" row

Most state/federal inmates are serving sentences of at least six months, so most if not all inmates that are identified as LTBI positive at intake and many identified during annual screenings should be able to complete treatment prior to release. An impressive three-quarters of the federal/state systems treat all inmates with latent TB infection; only two systems explicitly consider length of stay when starting treatment. Most of the systems that do not treat all LTBI-positive inmates do consider at least one of the other criteria.

Despite the short stays and the difficulty in knowing when jail inmates will be released only one-fifth of the city/county systems base treatment decisions on length of stay and over half treat all LTBI-positive inmates. One-fifth of the systems treat inmates co-infected with HIV or close contacts and one-fifth have no policy at all. These responses indicate that jails may not be following the CDC recommendations and, while universal access to treatment generally promotes health, in this case initiating treatment on inmates who may be released before completing therapy can promote medication resistance and actually lead to worse outcomes.

5.2.2 Treatment Options for Latent Tuberculosis Infection

CDC Recommendations For How to Treat LTBI

- The recommended regimen for preventive therapy in adults is a single daily dose of 300 mg of isoniazid for 6–12 months.
- HIV-infected persons, or persons who are at risk for HIV infection but whose HIV status is unknown, should receive 12 months of preventive therapy if they have a positive skin-test result.

Almost all responding state/federal systems (98%) and city/county facilities (97%) prescribe isoniazid (INH) for latent TB infection as shown in Table 8. Both respondent types have almost identical average time of treatment for HIV-negative (8.3–8.4 months) and HIV-positive (9.5–9.8 months) inmates. CDC recommends that HIV-negative TB patients be treated for 6-12 months and that HIV-positive TB patients

be treated for 12 months, so systems are generally meeting treatment goals for HIV-negative inmates with TB, treatment duration falls short for HIV-infected inmates.

Table 8

Treatment Regimens for Treatment of Latent TB Infection

	State & Federal (n=47)		City & County (n=33)	
Treatment Type*	**n**	**%**	**n**	**%**
Rifampin and pyrazinamide (2–month short course)	5	11%	5	15%
INH (isoniazid)	46	98%	32	97%
Duration of INH Treatment	**n**	**Mean # Months**	**n**	**Mean # Months**
HIV-Negative	46	8.4	24	8.3
HIV-Positive	40	9.5	22	9.8

* More than one response was allowed.

6 Education, Discharge Planning and Collaboration With Departments of Public Health and Community-Based Organizations

3.2 Tuberculosis Education for Inmates

Most prisons and jails are providing at least rudimentary information to inmates about TB and TB testing as displayed in Table 9.

Table 9

Tuberculosis Education Services Provided to Inmates

	State & Federal (n=47)		City & County (n=33)	
	n	%	n	%
Basic TB information	43	91%	27	82%
Meaning of TB skin test results	40	85%	23	70%

3.2 Discharge Planning for Inmates with Tuberculosis

5.2.2 Availability of Discharge Planning

Table 10 shows the number of facilities that offer discharge planning to inmates with TB disease and LTBI as well as the proportion of inmates that receive discharge planning in systems that provide this service. More state/federal systems than city/county systems offer discharge planning, and in both types of systems services are more likely to be offered to inmates with TB disease than to inmates with LTBI. Some discharge planning is widely available in prisons and in many jails, however much of this discharge planning is rudimentary and focused on referrals. Table 10 suggests that systems that have discharge planning programs in place are able to serve a large proportion of inmates with TB.

Table 10

Discharge Planning for Inmates with TB Disease and LTBI

	State & Federal (n=47)				City & County (n=33)			
	TB Disease		LTBI		TB Disease		LTBI	
	n*	%	n*	%	n*	%	n*	%
Systems Offering Discharge Planning*	42	89%	40	85%	25	76%	21	64%
Inmates Received Discharge Planning**								
All inmates	31	74%	23	58%	20	80%	12	57%
76–99%	6	14%	12	30%	2	8%	4	19%
51–75%	1	2%	1	3%	0	0%	2	10%
26–50%	0	0%	0	0%	0	0%	0	0%
Not Reported	2	4%	2	4%	0	0%	0	0%

* Several respondents (4, 8, 3 and 4 respectively) indicated that they did not provide discharge planning to inmates with TB disease or LTBI but then recorded that some inmates received discharge planning. Any response indicating that discharge planning occurs was accepted and the total number of systems offering discharge planning was revised upwards.

**Denominator is number of systems offering any discharge planning.

Almost 90 percent of state/federal respondents offer discharge planning to inmates with TB disease and 85 percent offer it to inmates with LTBI. Over 75 percent of inmates receive discharge planning for both TB disease and LTBI in almost 90 percent of the systems. Five percent of the systems offering discharge planning reported reaching less than one-quarter of inmates with either TB disease or LBTI.

Three-quarters of the city/county systems offer discharge planning for individuals with TB disease and almost two-thirds provide it to LTBI-positives. Respondents assessed their programs as fairly effective at serving inmates with TB disease—88 percent reported that they reached three-quarters or more of the target population. Programs for inmates with LTBI were slightly less successful, 75 percent of the systems reached three-quarters of inmates with LTBI.

Table 11 shows when discharge planning for inmates with TB disease begins. Almost half the state/federal and over one-third of the city/county systems did not respond to this question. This lack of a clear policy on the discharge planning process may be a sign that, despite reporting that large numbers of inmates receive discharge planning, these programs are not highly organized. Given the competing priorities of correctional health care and the importance of completing the entire course of TB therapy, this is an area for improvement.

Table 11

Number of Days Prior to Release That Discharge Planning Begins for Inmates with Tuberculosis Disease

	State & Federal (n=47)		City & County (n=33)	
	n	%	n	%
At intake	6	13%	20	61%
After Intake	18	38%	1	3%
Mean # Days Prior to Release	56		7	
Median # Days Prior to Release	36		7	
Not Reported / No Discharge Planning	23	49%	12	36%

Not many state/federal systems (n=6) start discharge planning at intake. This makes sense as the primary service required for post-release follow-up is an appointment with the department of public health or other medical provider and it may not be known at intake whether or not the inmate will have completed treatment by the time they are released. Discharge planning begins, on average, about two months prior to release with a median time of a little over one month in advance. In contrast, almost all city/county systems that responded to the question—three-fifths of the total—reported that they start discharge planning at intake; given the quick turnaround and unexpected release of jails inmates, starting discharge planning early is an important element of successful follow-up. One jail initiates planning one week prior to release.

Starting discharge planning early is important because release dates are unpredictable in jails and even in prisons, as shown in Table 12. In state/federal systems release dates are known definitively in advance in only 51% of systems and are known less than one-quarter of the time in 15 percent. Not surprisingly, release dates are almost never known in advance in 30 percent of the city/county systems and are known in advance three-quarters of the time or more in only 36 percent of systems.

Table 12

How Often Do Health Staff Know in Advance When Inmates With Tuberculosis Will be Released?

	State & Federal (n=47)		City & County (n=33)	
	n	%	n	%
Always or almost always	24	51%	11	33%
About 75% of the time	9	19%	1	3%
About 50% of the time	1	2%	3	9%
About a quarter of the time	2	4%	3	9%
Never or rarely	5	11%	10	30%
Not Reported	6	13%	5	15%

5.2.2 Discharge Planning Services

Table 13 shows how many systems offer which discharge planning services to inmates infected with TB and LTBI at release: provide the address of the department of public health to the inmate; inform the department of public health of the inmate's release and transfer the medical record; schedule follow-up appointments at the department of public health for the inmate; and arrange for the department of public health to come into the facility to meet with the inmate.

Table 13

Discharge Planning for Inmates with TB Disease and LTBI

	State & Federal (n=47)				City & County (n=33)			
	TB Disease		LTBI		TB Disease		LTBI	
Discharge Planning Element	n	%	n	%	n	%	n	%
Provide Inmate the Address of DPH	35	75%	38	81%	25	76%	30	91%
Inform DPH of Inmate's Release and Provide Medical Records	36	77%	30	64%	24	73%	12	36%
Schedule Follow-up Appointment for Inmate at DPH	27	57%	15	32%	20	43%	7	21%
Arrange for DPH to visit Inmate at facility	9	19%	4	9%	17	52%	8	24%

For both TB disease and LTBI, all systems are more likely to offer less intense discharge planning services to inmates (i.e., providing inmates with the address of the local department of public health where they can get treatment and informing the department of public health that inmates are coming out) rather than more intense services (i.e., setting up an appointment with the local department of public health or having department of public health staff come into the facility to meet the inmate before release).

About three-quarters of the state/federal and the city/county systems give inmates the address of local departments of public health and inform local departments of public health that a TB-positive inmate was being released for inmates with TB disease. While both prisons and jails provide less intense discharge planning to inmates with LTBI than to those with TB disease, more systems give the address of the local department of public health to inmates with LTBI than to inmates with TB disease.

Less than 60 percent of state/federal systems schedule community appointments for inmates with TB disease and only a third do so for inmates with LTBI. Not many systems have department of public health staff come in to meet with inmates with TB disease (19%) and very few with inmates with LTBI (9%). It is understandably more difficult to offer these services in prisons, which are usually located far from the community of return so that it would be difficult for the department of public health staff to travel to the prison, and can be challenging even to schedule appointments. This is an area where setting up a phone conversation with the inmate and the department of public health may be an effective solution; another option, when possible, could be a teleconference using systems set up for telemedicine.

City/county systems generally did less than state/federal systems except in the sphere of bringing the department of public health into the facilities; half the jails did this for inmates with TB disease and one-

quarter for inmates with LTBI. Since jails are located in the community with departments of public health and both entities provide TB treatment and prevention to a shared pool of patients, it is mutually beneficial to collaborate on these services and to track patients as they move between community and jail-based care.

3.2 Collaboration with State and Local Departments of Public Health and Community-Based Organizations

Almost all jails and prison inmates return to the community. When individuals with tuberculosis and other infectious diseases are released it is especially important that departments of public health and community-based organizations (CBOs) be prepared to provide medical and support service to ensure that treatment, prevention and education continue in the community. Collaboration with departments of public health is an especially important component of continuity of care for inmates still being treated at the time of release. CBOs can also play a role in this process through case management and TB education and prevention.

5.2.2 Level and success of collaborations with community-based organizations and departments of public health

Some level of collaboration between the state/federal systems and departments of public health on infectious disease management is almost universal. Current collaboration on TB prevention and treatment is also very common as can be seen in Table 14. State/federal systems were generally positive about these relationships, three-quarters rated them as “very successful” and none as “not successful”. Collaboration with community-based organizations (CBOs) on any health issues is slightly less common (80%) and was uncommon on TB (only one-third of the systems reported relationships). Where there was collaboration, there was not necessarily satisfaction, less than half of the systems that collaborated with CBOs rated the relationship as “very successful”.

Table 14

Collaborations on TB Services Between Correctional Systems and State or Local Departments of Public Health (DPHs) and Community Based Organizations (CBOs)

	State & Federal (n=47)		City & County (n=33)	
	n	%	n	%
Collaboration With DPHs on Any Health Condition	45	96%	33	100%
Ongoing Collaboration with DPHs on TB Services	42	89%	31	94%
Success of collaboration With DPHs on TB Services *				
Very Successful	32	76%	25	81%
Somewhat successful	11	26%	7	23%
Not successful	0	0%	0	0%
Collaboration With CBOs on Any Health Condition	38	81%	18	55%
Ongoing Collaboration With CBOs on TB Services	17	36%	9	27%
Success of Collaboration With CBOs on TB Services *				
Very Successful	8	47%	7	78%
Somewhat successful	5	29%	2	22%
Not successful	1	6%	0	0%

* Denominator based on number of systems with ongoing collaboration with DPHs or CBOs.

All city/county systems reported collaborating with departments of public health on infectious disease management of some type and all but two collaborate on TB services. These collaborations are considered "very successful" by four-fifths of systems and none consider them unsuccessful. Collaboration between CBOs and jails is even less common than with prisons, only slightly more than half collaborate on any health issue and only one-quarter on TB. However, when jails do work with CBOs, they are more satisfied with the collaboration than prisons are, over three-quarters are "very satisfied".

5.2.2 Areas of Collaboration with Community-based Organizations and Departments of Public Health

Table 15 breaks out in more detail the areas of collaboration between correctional systems and departments of public health and CBOs outlined in table TB12.

Table 15:

Types of TB Services Provided by Departments of Public Health (DPHs) and Community-based Organizations (CBOs)

	State & Federal (n=47)				City & County (n=33)			
	DPHs		CBOs		DPHs		CBOs	
	n	%	n	%	n	%	n	%
Disease education	26	55%	8	17%	20	61%	7	21%
Screening and diagnosis	18	38%	3	6%	22	67%	6	18%
Case reporting/surveillance	36	77%	n/a		27	82%	n/a	
Pre-/post-test counseling	5	11%	2	4%	14	42%	4	12%
Partner notification/contact tracing	22	47%	n/a		18	55%	n/a	
Outbreak investigation in the facility	35	74%	n/a		21	64%	n/a	
Treatment/prophylaxis consultation	25	53%	4	9%	24	73%	3	9%
Discharge planning/linkages to service in the community	32	68%	5	11%	23	70%	5	15%
Staff training	27	57%	11	23%	14	42%	8	24%
Immunization	5	11%	n/a		5	15%	n/a	
Record keeping systems	10	21%	n/a		12	36%	n/a	
Other	0	0%	8	17%	0	0%	4	12%

Items marked "n/a" in the CBO columns were not asked on the 2005 survey.

For state/federal systems, the three services that they collaborate on most often with departments of public health are case reporting/surveillance, outbreak investigation and discharge planning. Two areas where departments of public health arguably could provide significant guidance and support to correctional facilities, but where there is currently not much collaboration are screening/diagnosis and treatment/prophylaxis, about a third collaborate on the first and slightly over half on the second. Like the state/federal systems, the city/county systems collaborate with departments of public health most often on case reporting/surveillance and discharge planning but many also work on treatment/prophylaxis.

The most common areas of collaboration with CBOs for state/federal systems are staff training and inmate education, but only 23 and 17 percent systems responding do so; at the low end, only three systems collaborate on screening and diagnosis. City/county systems are not much more likely to work with CBOs, one-quarter work on staff training and inmate prevention and education activities and two-fifths on education.

A larger proportion of city/county than state/federal respondents collaborate with departments of public health and with CBOs on almost all TB services. Both city/county and state/federal respondents are more likely to collaborate with departments of public health than with CBOs. The higher level of collaboration between jails and departments of public health is likely related to the fact that jails are located in the community of return so both institutions are clearly serving the same individuals. Also they may have fewer resources to devote to TB prevention and treatment so may take advantage of the recourses available through the other agency.

7 Assessment and Data Availability

CDC Recommendations For Assessing TB Control Programs

Inmates are often moved or transferred within and between facilities. This makes a retrievable aggregate record system essential for tracking all inmates and for assessing the status of inmates with TB. This record system should maintain current information about the location, screening results, treatment status, and degree of infectiousness of these persons. The record system also should provide the information necessary to assess the overall effectiveness of TB control efforts. The following information should be reviewed at least annually:

- The numbers of correctional-facility employees and inmates currently infected with M. tuberculosis.
- The number of newly infected persons.
- The number of persons for whom preventive therapy was initiated.
- The percentage of persons who completed the prescribed preventive therapy regimen (excluding those released from or transferred).
- The number of diagnosed TB cases and the case rate.
- The percentage of persons in whom active TB disease was diagnosed who completed the prescribed treatment regimen (excluding those released from or transferred).
- The number of infectious (i.e., smear-positive) patients.
- The percentage of released or transferred inmates who kept their scheduled referral appointment.

In issuing their recommendation on the Prevention and Control of Tuberculosis in Correctional Facilities the CDC realized that the key to meeting many of their goals is data, therefore they included Assessment as one of the domains of the document and specified the necessary data elements and systems that need to be in place to treat and track TB in correctional facilities. As has been discussed throughout this report and in more detail in another report in this series that focuses specifically on disease surveillance and reporting ("Technical Capability Assessment of Correctional Health Care Data Management Information Systems and Overall readiness to Participate in the Development of a Disease Reporting System"), many systems are still not able to report many of these basic data elements.

Abt Associates conducted intense telephone follow-up calls to systems that did not return the survey and also to systems that did return the survey but either left questions blank or gave answers that were contradictory or not clear. These calls yielded very valuable information about how data are collected and stored at the facility- and system-level and about the operational and organization barriers to collecting correctional health data at this moment.

References

CDC. Prevention and Control of Tuberculosis in Correctional Facilities Recommendations of the Advisory Council for the Elimination of Tuberculosis. MMWR 1996; 45(RR-8);1–27

Reichard AA, Lobato MN, Roberts CA, Bazerman LB, Hammett TM. Assessment of Tuberculosis Screening and Management Practices of Large Jail Systems. Public Health Reports. November/December 2003. Vol 118. pp. 500–507.

CDC. QuantiFERON®-TB Gold Test Fact Sheet, 2006. Atlanta, GA: U.S. Department of Health and Human Services, CDC, http://www.cdc.gov/nchstp/tb/pubs/tbfactsheets/250103.htm (accessed April 21, 2006).