Technical Capability Assessment of Correctional Health Care Data Management Information Systems and Overall Readiness to Participate in the Development of a Disease Reporting System.

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1. Introduction

The primary objective of this project is to assess the health care management information systems and disease surveillance and reporting procedures used by state/federal prison systems and large city/county jail systems. The assessment covers the data management tools in use in the correctional systems as well as their conceptual approaches to disease surveillance. We investigated internal record-keeping and external reporting and, on this basis, assessed systems' technical sophistication and capability for developing or participating in enhanced systems for disease surveillance.

Data for this assessment come primarily from a set of questions included in the 10th National Survey of Infectious Diseases in Correctional Facilities carried out by Abt Associates Inc. for the National Institute of Justice and the Centers for Disease Control and Prevention during 2005.

This project has a somewhat complicated background. It grows primarily from efforts going back over at least ten years to find better ways to integrate disparate sources of surveillance data on infectious diseases in various populations and settings so as to generate better strategic information on prevalence, incidence, and epidemiologic trends. In 1995, the Steering Committee on Public Health Information and Surveillance System Development of the CDC's Agency for Toxic Substances and Disease Registry (CDC/ATSDR) concluded that there was serious fragmentation among data systems that had been created for disparate purposes. The committee recommended improved integration and efficiency so as to enhance and broaden the usefulness of these data systems, while maintaining responsiveness to specific purposes and continuing to protect the confidentiality of patient information.

These CDC/ATSDR steering committee recommendations were in part responsible for the development beginning in 1999 of the National Electronic Disease Surveillance System (NEDSS). NEDSS is intended to provide electronic methods for exchanging, integrating, and analyzing surveillance data for various purposes. States are not required to participate in NEDSS but CDC will make state systems' compatibility with NEDSS a prerequisite for their receiving CDC support for surveillance activities. Despite these plans, the development and adoption of NEDSS has proceeded slowly and there remain multiple surveillance data systems operating in isolation from one another and with substantial unevenness in coverage and serious problems of data incompatibility.

In 2002, the National Commission on Correctional Health Care and the National Institute of Justice submitted a report to Congress on the *Health Status of Soon-To-Be-Released Inmates*. Included among the policy recommendations in this report was a further strong call for uniform collection and reporting of surveillance data on communicable diseases, chronic diseases, and mental illness among correctional inmates. This recommendation was, in fact,

the direct impetus for NIJ commissioning two studies by Abt Associates: an examination of disease reporting practices and systems in selected states (the report of which was submitted to NIJ in July 2005) and the present assessment of health care management information systems and disease surveillance and reporting procedures which is based on information from a larger survey of prison and jail systems. Both studies were to focus on communicable diseases.

The first study was based on telephone and some on-site interviews with correctional and public health officials in nine states. The study concluded that under-reporting of infectious diseases by correctional systems was probably no worse than by other institutions or agencies and that correctional and public health officials in the studied states were well aware of disease reporting requirements and procedures. Although most states do not explicitly flag cases diagnosed in correctional settings in their surveillance reporting, most officials said that such cases could usually be identified by the name or location of the reporting facility.

Like previous assessments, this recommended that surveillance reporting be consolidated into fewer and better-integrated systems, such as a dedicated correctional reporting module within NEDSS. However, the study also acknowledged that the data integration and matching needed to develop continuous estimates of infectious disease prevalence and incidence in correctional settings would be unduly burdensome and expensive. More modest efforts, such as annual data "snapshots," were offered as possibly more feasible alternatives.

In this report, we compare the results of the present study with the previous assessment of nine states and update the findings and recommendations accordingly.

2. Methods

We originally intended to gather data for this study using a stand-alone survey of a sample of 25 prison systems and the 10 largest jail systems. Coincidentally, Abt Associates had been funded to perform the NIJ/CDC Survey of Infectious Diseases in Correctional Facilities, which would reach the universe of state prison systems and the 50 largest jails nationwide. To both increase the sample size and decrease the likelihood of burden-based refusals, while addressing all intended health topics, we added questions to the existing Survey of Infectious Diseases rather than administer a separate survey.

Each potential respondent was contacted by telephone prior to hard copy surveys being mailed out to confirm the contact information and determine the best person to coordinate the completion of the survey, i.e., the Medical Director or someone such as an infectious disease nurse. Coordinating the response was particularly important, as most systems would require the participation of more than one respondent. In some cases, different respondents would address all issues related to various disease categories; in other cases, different respondents would address different aspects of disease management (e.g., testing, recording, reporting).

Additionally, the survey had components that were not relevant to this study – such as housing for inmates with HIV Disease, tuberculosis program assessment, education and prevention – which may have required other respondents. A stapled paper survey was provided to each primary respondent; completed surveys were submitted only by mail.

To accommodate the multiple respondents, we planned an extended field period for the survey – the spring and summer of 2005. Responses were to cover all adult facilities in the system and respondents were asked to provide data for the most recently completed 12-month period, most commonly June 2003-June 2004.

After the customary telephone follow-up by trained and experienced survey staff (over 1400 calls), research staff performed final follow-up. The additional 408 calls yielded important qualitative data regarding health care systems and staffing in correctional facilities as well as yielding additional completed surveys; a report on the qualitative findings is under separate cover.

The final sample includes the Federal Bureau of Prisons and 46 state Departments of Correction, for a state response rate of 92%. States that did not respond were Alabama, Mississippi, Nebraska, and New Mexico. The response rate for large jails, listed in Table A, was lower, 66% (n=33), despite the intensive follow-up. (The survey also collected data from very small convenience samples of small city jails, regional facilities, and tribal facilities. These samples do not provide generalizable data appropriate for this report.)

3. Results

Three key factors of correctional systems' capability and readiness to participate in national infectious disease reporting programs are their internal recording of test results, their external reporting of results to state health agencies, and their technical resources such as hardware, software, automated systems and linkages between them, and training, sources, and methods for data entry and data extraction. In the following three sections, we present the results of the NIJ/CDC survey in these areas.

3.1. Internal recording of infectious disease results

As shown in other sections of the report on the NIJ/CDC survey, virtually all responding correctional systems conduct at least some testing for all of the diseases of interest: HIV, TB, STDs, and hepatitis. Therefore, all systems have at least some test results to record internally and report to cognizant health agencies.

Table B summarizes the responses from state/federal and city/county correctional systems on how they record infectious disease test results internally. This table shows that across all diseases, 63-66% of responding city/county jail systems say they record test results in disease

registries. Among responding state/federal prison systems, there was more variation across diseases, with 43% (HAV) to 72% (HCV) of systems recording results in registries. Seventy percent said they recorded HIV and AIDS cases in registries. In jail systems, over a third of those saying that they record results in registries also said that they maintain electronic registries in at least some of their facilities, compared with almost half in prison systems.

3.2. Reporting infectious disease test results to state agencies

Table C summarizes responses on reporting test results to state health agencies. It is worth noting that CDC's case reporting forms for HIV, AIDS, and TB disease contain spaces to record whether the diagnosis was made in a correctional facility. For other diseases, however, this may have to be deduced from the address of the reporting facility or it may not be discernible at all. In any event, these figures would represent cases diagnosed in correctional facilities rather than total cases among individuals who pass through correctional facilities. The latter figures are needed to assess fully the burden of disease in correctional populations.

There are some variations in methods of reporting by type of system. State/federal prison systems tended to rely on laboratories (47-57% of systems depending on disease) and individual correctional facilities (38-51%) to report cases directly to state health departments, with 26% having health services contractors and 21-23% city or county health agencies report to the state. Among responding city/county jail systems, there was heavier reliance on reporting to the state by city/county health departments (48-61% of systems, depending on disease), with 27-36% by laboratories, 21-33% by facilities and 15-18% by health service contractors. Many facilities report more than one responsible reporting entity for each disease, which suggests that there is some potential for duplicate reporting of cases. Duplication is particularly likely if both laboratories and facilities report, which is the case for 9% of jails for all diseases, and 19% to 28% (HIV/AIDS) of prisons, depending on disease.

Table D combines survey responses to assess systems' ability to calculate prevalence or positivity rates for different diseases based on reporting both positive results and total tests conducted per specified period, either in aggregate or individual records. Individual level reporting normally allows more analysis because demographics, risk factors, and other characteristics may be reported for each case. Among state/federal systems, only 9% (HIV) to 11% (all other diseases) systems reported both positive and total cases individual, with 0%-4% (HIV) reporting both in aggregate. Far greater percentages of city/county systems reported both positive and total tests individually, 33% (TB disease) to 39% (syphilis, gonorrhea, and chlamydia; HIV=36%), while 6% to 9% reported both in the aggregate.[1]

[1] Sites that report both results with individual identifiers and aggregate data are listed here, and in the table, as reporting using individual identifiers only.

3.3. Potential for participation in national disease reporting system

To assess further correctional systems' technical readiness and potential for participation in national disease reporting programs, the NIJ/CDC survey gathered data on hardware, software, automated systems and linkages between them, and training, sources, and methods for data entry and data extraction. These survey responses are summarized in Table E.

Based on these survey responses, overall readiness for participation in national disease reporting appears to be at only moderate levels in correctional systems. In terms of access to personal computers and the internet and availability of automated medical record systems, city/county jail systems are generally better off than state/federal prison systems. Seventy-nine percent of responding city/county systems said that all or most of their health services staff have access to personal computers, as opposed to 57% of state/federal systems. Optimal participation in disease reporting systems is likely to be web-based, but only slightly over half (55%) of city/county systems and less than half (43%) of state/federal systems reported having internet access in their health services departments. Internet access may be restricted in correctional settings for security reasons.

Having computerized systems for maintaining inmates' medical records may facilitate participation in disease reporting programs, but well below half of city/county systems (39%) and less than a third of state/federal systems (32%) said they had automated medical records systems. When we added the systems that said they were planning to implement such automated records in the next 12 months, the total percentage with existing or planned automated medical records rose to 61% of city/county systems and 47% of state/federal systems.

Table F presents cross-tabulations of systems that maintain electronic disease registries in at least some of their facilities with those that have computerized inmate medical records. The existence of such multiple systems – that would suggest a greater facility for electronically transfer and analysis of disease reporting data at the individual level – is not widespread. In state/federal prison systems, 17% (gonorrhea and Chlamydia) to 34% (HCV) (HIV=32%) have both types of automated systems, while in city/county jail systems, there are even fewer – only 12% (HIV/AIDS) to 24% (TB).

Among systems with automated medical records, most relied on correctional health staff to enter test results (8 of 13 city/county and 13 of 15 state/federal), with only a few using dedicated data entry staff, other staff, or having results electronically transferred into records by the testing laboratories (Table LINK). About half of city/county (7 of 13) and state/federal systems (7 of 15) said that test results were entered into specific fields for that purpose in the inmate medical record.

State/federal prison systems were more likely to have automated other inmate records (70%) than are city/county systems (55%), but the proportion of systems that have both automated

medical and other inmate records is similarly less than a third for both state/federal (14 of 47) and city/county (10 of 33, Table E). (See also Table G for a matrix of which systems are computerized and whether they are linked.) Most of these systems reported that the automated inmate medical and other records are linked (8 of 14 for state/federal and 7 of 10 for city/county, but overall those with linked records represent only very small percentages of total responding correctional systems – 17% of state/federal systems and 21% of city/county systems. Such linked record systems are important for generating prevalence and incidence statistics because both disease status (from medical record) and period of incarceration (from other inmate record) are needed and the calculation process is facilitated by having the ability to merge or cross-query databases.

Two-thirds of state/federal systems and 39% of city/county systems reported having staff trained to extract disease data from inmate records, but less than 20% of city/county (18%) and state/federal systems (19%) had both trained staff and computerized medical records.

The vast majority of systems reported relying on internal data (i.e. from correctional records), as opposed to health department data, health services expenditures or other data, to calculate the burden of infectious diseases in their inmate populations for planning or budgetary forecasting. This practice suggests that there is little triangulation of data sources to arrive at better statistics regarding numbers of cases or burden of disease.

4. Typology of existing systems

4.1. Method for grouping systems.

A key objective of this study was to determine the capacity of correctional systems to participate in a disease reporting system. Prior to the survey field period, we developed a number of approaches that could be used to rank the systems according to their readiness to participate in disease reporting. All the approaches were predicated on higher levels of technical readiness than was reported by systems. Therefore, we developed a method to categorize each system into one of four groups that was more congruent with the data. For both state/federal and city/county systems, very few entities were at the highest level of readiness and the remaining systems were fairly evenly divided among the lower three categories.

Two factors that seem critical to participation are (1) having computerized medical records and (2) having access to the Internet in the health services department of the correctional system. In order to be included in the highest level of readiness, systems needed both. Only three state prison systems and five of the responding city/county jails met these criteria.

Having computerized medical records is critical to disease reporting because it implies the potential for automatic transfer of data without additional human intervention – entering data

for example, which inevitably introduces the potential for error. We included access to the Internet as a key factor for two reasons. First, a national reporting system is likely to require, or at least include, direct reporting via the Internet. Second, although it is relatively simple to get Internet access, the lack thereof may reflect the stringent security policies in place in correctional facilities, which may be difficult to change.

The second phase of categorization involved developing a simple, unweighted index of a 14 measures. For each measure, the system received a value of 1 if it met the criteria and 0 if it did not. The criteria were:

1. computerized inmate non-medical records
2. linked inmate medical and non-medical records (both computerized)
3. electronic registry for HIV Disease (HIV or AIDS)
4. electronic registry for any STD (syphilis, gonorrhea or chlamydia)
5. electronic registry for active TB
6. electronic registry for any hepatitis (A, B, or C)
7. report positive test results, with individual identifiers, for HIV
8. report positive test results, with individual identifiers, for any STD
9. report positive test results, with individual identifiers, for active TB
10. report positive test results, with individual identifiers, for any hepatitis
11. report total number of tests, with individual identifiers, for HIV
12. report total number of tests, with individual identifiers, for any STD
13. report total number of tests, with individual identifiers, for active TB, and
14. report total number of tests, with individual identifiers, for any hepatitis.

The value of the index theoretically ranges, of course, from zero to 14. Overall, state/federal systems had slightly higher scores (average 6.8) than the city/county systems (average 6.1), but both had a median score of 6. City/county systems had both the highest score, 12 (n=1), and the lowest, zero (n=2).

As demonstrated in Exhibit 1 on the following page, within each degree of computerization, the score on the index was used to determine the system's level of "readiness." Systems that had *either* computerized medical records *or* access to the Internet were eligible to be categorized in the second highest level of readiness. Systems with neither were all categorized in the lowest two levels.

Exhibit 1: Method for grouping correctional systems.

Degree of computerization	Score on index of 14 measures	Group
Health care staff has both computerized medical records and access to the Internet.	8-14	A
	5-7	B
	≤4	C
Health care staff has either computerized medical records or access to the Internet.	8-14	B
	5-7	C
Health care staff has neither computerized medical records nor access to the Internet.	8-14	C
	5-7	D

4.2. Grouping.

Due to the primary requirement of a high degree of computerization, only three city/county or state systems (and not the federal) fall at the highest level of readiness (see Exhibit 2). A higher percentage of the jails (9%) than the prisons (6%) were at this level.

Exhibit 2: Distribution of systems by degree of readiness

	City/County Jail Systems (n=33).		State/Federal Prison Systems (n=47).	
Group A	3	9%	3	6%
Group B	10	30%	13	28%
Group C	9	27%	19	40%
Group D	11	33%	12	26%

City/county systems not in Group A are evenly distributed across the other groups. State/federal systems are most frequently in Group C – they have neither type of computerization but do have at least eight important indicators of readiness.

Table H lists the systems that are in each level.

5. Discussion and recommendations

Overall, this larger survey suggests a somewhat less favorable assessment of correctional systems' readiness to participate in national infectious disease surveillance system than did Abt Associates' previous study of nine large state prison systems.

The three main facets of readiness covered in this survey were internal recording of cases of various diseases, external reporting of disease information to state agencies, and access to physical resources and technical capacity. In terms of internal recording, generally more than half of state/federal and city county systems reported having disease registries, depending on the disease, but fewer than half of these were electronic registries.

Most systems said that multiple entities – laboratories, individual facilities, health services contractors, city/county health departments – had responsibilities for reporting disease information to state health departments. Having multiple reporters is likely to result in at least some duplicative reporting. The result would be artificially high numbers of new cases, which would inflate estimates of disease incidence. Moreover, only about 10% of state/federal systems and 30-40% of city/county systems report data to the state in a format that would allow for accurate calculation of disease prevalence or seropositivity rates.

In terms of physical resources and technical capacity, only about half of systems have Internet access in their health services departments, less than 40% report that they currently have automated inmate medical records, although quite a few systems said they had plans to automate their records within a year. Less than a third of systems reported having both automated medical records and electronic disease registries. It is noteworthy that more than half of the systems reporting that they did not have automated inmate medical records also have contracted health services. Since the survey was answered by department of corrections staff, this raises the possibility that some of the contracted health providers do in fact have automated records but that communication between them and the correctional departments that ostensibly oversee them may be faulty. Such a situation might give rise to a number of concerns not just about data collection but also about the oversight of contractors delivering health services to inmates.

Most systems reported that they relied on internal data sources regarding infectious disease, indicating a lack of triangulation with other data that could produce more accurate counts of cases and calculations of disease prevalence and burden. Finally, less than 40% of systems reporting having staff trained to extract disease data from inmate medical records.

We developed a method to categorize and group systems by their readiness to participate in national disease surveillance reporting systems for infectious disease based on the key dimensions we surveyed. Systems were divided into four groups. To qualify for the highest quartile, a system had to have two features that we deemed indispensable to participation in efficient disease reporting: automated inmate medical records and access to the Internet in

the health services department. The remainder of the categorization was based on 14 other features regarding the characteristics of records, registries and their linkages, as well as levels of disease reporting to state agencies. The presence of each of these features gave the system one point in the scoring. The result was that only three state/federal systems and three city/county systems were assigned to the highest quartile and two-thirds of state/federal systems and 60% of city/county systems were in the bottom two quartiles.

The main limitation of this survey is that, particularly for city/county jail systems, the responses may not be representative of all systems, including medium and small systems. Despite extensive and intensive follow-up, the response rate was 66% for the 50 largest jail systems. We achieved a higher response rate of 92% for the state/federal prison systems; these data are more definitively representative.

What can be done to improve the situation and enhance correctional systems' readiness and capability to participate meaningfully in national infectious disease surveillance? Our recommendations include the following:

- Technical assistance should be provided to correctional systems and health services contractors on how to integrate data collection on infectious diseases within corrections with state surveillance systems.
- Technical assistance should be provided to correctional systems so that they may begin to participate in the National Electronic Disease Surveillance System (NEDSS).
- There should be improved communication regarding data collection and other health services matters between departments of corrections and their contracted health services providers.
- When health services contractors change, there should be a seamless transition in data collection, disease registries, and disease databases between the outgoing and incoming contractor.
- Remaining issues of identifying cases identified in correctional facilities and avoiding redundant reporting – e.g. unclear addresses of reporting entities, direct reporting by laboratories – should be resolved so that all such cases can be properly tabulated.
- Efforts should be made to address security and other issues so that there may be wider access to the Internet in correctional health services departments.
- More correctional systems should adopt automated inmate medical records, with dedicated fields for disease reporting, and link them with automated disease registries and reporting systems.

Table A: 50 City/County Jail Systems Surveyed

Respondents	State	Non-Respondents	State
Alameda County Jail or Jail System	CA	Maricopa County Jail or Jail System	AZ
Contra Costa County Jail or Jail System	CA	Hillsborough County Jail or Jail System	FL
Fresno County Jail or Jail System	CA	Palm Beach County Jail or Jail System	FL
Kern County Jail or Jail System	CA	Cobb County Jail or Jail System	GA
Los Angeles County Jail or Jail System	CA	De Kalb County Jail or Jail System	GA
Orange County Jail or Jail System	CA	Fulton County Jail or Jail System	GA
Riverside County Jail or Jail System	CA	Orleans Parish Jail or Jail System	LA
Sacramento County Jail or Jail System	CA	Baltimore County Jail or Jail System	MD
San Bernardino County Jail or Jail System	CA	Essex County Jail or Jail System	NJ
San Diego County Jail or Jail System	CA	Clark County Detention Center	NV
San Francisco City & County Jail or Jail System	CA	Philadelphia City Jail or Jail System	PA
Santa Clara County Jail or Jail System	CA	Davidson County Jail or Jail System	TN
District of Columbia - CTF	DC	Shelby County Jail or Jail System	TN
Broward County Jail or Jail System	FL	El Paso County Jail or Jail System	TX
Dade County Jail or Jail System	FL	Reeve County Jail or Jail System	TX
Jacksonville County Jail or Jail System	FL	Tarrant County Jail or Jail System	TX
Orange County Jail or Jail System	FL		
Pinellas County Jail or Jail System	FL		
Polk County Jail or Jail System	FL		
Cook County Jail or Jail System	IL		
Marion County Jail or Jail System	IN		
Suffolk County Jail or Jail System	MA		
Wayne County Jail or Jail System	MI		
New York City Jail or Jail System	NY		
Franklin County Jail or Jail System	OH		
Hamilton County Jail or Jail System	OH		
Oklahoma County Jail or Jail System	OK		
Allegheny County Jail or Jail System	PA		
Bexar County Jail or Jail System	TX		
Dallas County Jail or Jail System	TX		
Harris County Jail or Jail System	TX		
Travis County Jail or Jail System	TX		
County of Milwaukee Jail or Jail System	WI		

Table B-1: Recording of infectious diseases within correctional system, City/County Jail Systems (n=33).

Part 1) Method of recording infectious diseases and test results.

	HIV	AIDS	Syphilis	Gonorrhea	Chlamydia	Active TB	HAV	HBV	HCV	Any disease
Positive results in inmate's medical record	31 94%	30 91%	33 100%	33 100%	33 100%	32 97%	32 97%	32 97%	32 97%	33 100%
Negative results in inmate's medical record	28 85%	27 82%	30 91%	30 91%	30 91%	29 88%	28 85%	28 85%	29 88%	30 91%
Positive results in inmate's administrative record	1 3%	1 3%	1 3%	1 3%	1 3%	2 6%	2 6%	2 6%	2 6%	2 6%
Negative results in inmate's administrative record	0 0%	0 0%	1 3%	1 3%	1 3%	1 3%	1 3%	1 3%	1 3%	1 3%
Positive results in disease specific database or registry (see type, below)	21 64%	21 64%	21 64%	21 64%	21 64%	22 67%	21 64%	21 64%	21 64%	23 70%
Other	2 6%	1 3%	2 6%	2 6%	2 6%	3 9%	2 6%	2 6%	2 6%	3 9%

Part 2) For systems with a disease-specific database or registry, type of registry.

	HIV	AIDS	Syphilis	Gonorrhea	Chlamydia	Active TB	HAV	HBV	HCV	Any disease
Electronic registry in all facilities.**	4 12%	3 9%	4 12%	3 9%	3 9%	5 15%	3 9%	3 9%	3 9%	6 18%
Non-electronic registry in all facilities.	9 27%	8 24%	8 24%	9 27%	9 27%	8 24%	9 27%	9 27%	9 27%	9 27%
Electronic registry in some facilities.**	0 0%	1 3%	3 9%	3 9%	3 9%	3 9%	3 9%	3 9%	3 9%	3 9%
Non-electronic registry in some facilities.	1 3%	1 3%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	0 0%	1 3%
Other	7 21%	7 21%	6 18%	6 18%	6 18%	6 18%	7 21%	7 21%	7 21%	7 21%
** Electronic registry in all or some facilities.	4 12%	4 12%	7 21%	6 18%	6 18%	8 24%	6 18%	6 18%	6 18%	8 24%

Table B-2: Recording of infectious diseases within correctional system, State/Federal Prison Systems (n=47).

Part 1) Method of recording infectious diseases and test results.

	HIV	AIDS	Syphilis	Gonorrhea	Chlamydia	Active TB	HAV	HBV	HCV	Any disease
Positive results in inmate's medical record	44 94%	44 94%	44 94%	44 94%	44 94%	44 94%	44 94%	44 94%	44 94%	44 94%
Negative results in inmate's medical record	43 91%	43 91%	43 91%	43 91%	43 91%	43 91%	43 91%	43 91%	43 91%	43 91%
Positive results in inmate's administrative record	2 4%	2 4%	2 4%	2 4%	2 4%	2 4%	1 2%	1 2%	1 2%	2 4%
Negative results in inmate's administrative record	1 2%	1 2%	1 2%	1 2%	1 2%	1 2%	1 2%	1 2%	1 2%	1 2%
Positive results in disease specific database or registry (see type, below)	33 70%	30 64%	23 49%	22 47%	22 47%	31 66%	20 43%	23 49%	34 72%	39 83%
Other	1 2%	1 2%	1 2%	1 2%	1 2%	2 4%	1 2%	1 2%	1 2%	2 4%

Part 2) For systems with a disease-specific database or registry, type of registry.

	HIV	AIDS	Syphilis	Gonorrhea	Chlamydia	Active TB	HAV	HBV	HCV	Any disease
Electronic registry in all facilities.**	12 26%	12 26%	9 19%	8 17%	8 17%	13 28%	9 19%	10 21%	14 30%	15 32%
Non-electronic registry in all facilities.	7 15%	7 15%	7 15%	7 15%	7 15%	7 15%	6 13%	7 15%	8 17%	10 21%
Electronic registry in some facilities.**	3 6%	2 4%	1 2%	0 0%	0 0%	2 4%	1 2%	1 2%	2 4%	4 9%
Non-electronic registry in some facilities.	4 9%	2 4%	1 2%	1 2%	1 2%	3 6%	1 2%	1 2%	3 6%	6 13%
Other	6 13%	5 11%	4 9%	4 9%	4 9%	6 13%	2 4%	2 4%	5 11%	8 17%
** Electronic registry in all or some facilities.	15 32%	14 30%	10 21%	8 17%	8 17%	15 32%	10 21%	11 23%	16 34%	18 38%

Table C-1: Reporting infectious disease test results to state agencies, City/County Jail Systems (n=33).

Part 1) Entity responsible for reporting communicable disease to the state.

	HIV		Syphilis		Gonorrhea		Chlamydia		Active TB		HAV		HBV		HCV		Any disease	
Facility (Jail/Prison)	7	21%	8	24%	8	24%	8	24%	11	33%	7	21%	7	21%	7	21%	11	33%
Central Correctional System	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Lab that does testing	12	36%	12	36%	12	36%	12	36%	9	27%	10	30%	10	30%	10	30%	14	42%
Private medical contractor	6	18%	5	15%	5	15%	5	15%	5	15%	5	15%	5	15%	5	15%	6	18%
na=State does not require reporting of this disease	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	3%	1	3%
Sub-state public health agency (city or county see below)	19	58%	20	61%	20	61%	20	61%	17	52%	17	52%	17	52%	16	48%	20	61%
Other	2	6%	0	0%	0	0%	0	0%	1	3%	1	3%	1	3%	0	0%	2	6%

Part 2: If sub-state agency has state reporting responsibility, entity responsible for reporting communicable diseases to the sub-state agency.[a]

	HIV		Syphilis		Gonorrhea		Chlamydia		Active TB		HAV		HBV		HCV		Any disease	
Facility (Jail/Prison)	8	42%	9	45%	9	45%	9	45%	9	53%	8	47%	8	47%	7	44%	10	50%
Central Correctional System	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Lab that does testing	8	42%	9	45%	10	50%	10	50%	8	47%	7	41%	7	41%	6	38%	10	50%
Private medical contractor	4	21%	4	20%	4	20%	4	20%	4	24%	4	24%	4	24%	4	25%	4	20%
Other	2	11%	1	5%	1	5%	1	5%	1	6%	1	6%	1	6%	1	6%	2	10%

a Percentage is based on number of systems for which a sub-state entity reports to the state.

Table C-2: Reporting infectious disease test results to state agencies, State/Federal Prison Systems (n=47).

Part 1) Entity responsible for reporting communicable disease to the state.

	HIV		Syphilis		Gonorrhea		Chlamydia		Active TB		HAV		HBV		HCV		Any disease	
Facility (Jail/Prison)	24	51%	21	45%	20	43%	20	43%	23	49%	18	38%	18	38%	18	38%	24	51%
Central Correctional System	4	9%	3	6%	3	6%	3	6%	5	11%	3	6%	3	6%	3	6%	5	11%
Lab that does testing	26	55%	27	57%	25	53%	25	53%	22	47%	26	55%	27	57%	26	55%	29	62%
Private medical contractor	12	26%	12	26%	12	26%	12	26%	12	26%	12	26%	12	26%	12	26%	12	26%
na=State does not require reporting of this disease	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	2%	1	2%
Sub-state public health agency (city or county see below)	10	21%	10	21%	10	21%	10	21%	11	23%	10	21%	10	21%	10	21%	11	23%
Other	2	4%	2	4%	2	4%	3	6%	4	9%	3	6%	3	6%	3	6%	4	9%

Part 2: If sub-state agency has state reporting responsibility, entity responsible for reporting communicable diseases to the sub-state agency.[a]

	HIV		Syphilis		Gonorrhea		Chlamydia		Active TB		HAV		HBV		HCV		Any disease	
Facility (Jail/Prison)	7	70%	7	70%	7	70%	7	70%	8	73%	7	70%	7	70%	7	70%	8	73%
Central Correctional System	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Lab that does testing	2	20%	2	20%	2	20%	2	20%	2	18%	2	20%	2	20%	2	20%	2	18%
Private medical contractor	1	10%	1	10%	1	10%	1	10%	1	9%	1	10%	1	10%	1	10%	1	9%
Other	1	10%	1	10%	1	10%	1	10%	1	9%	1	10%	1	10%	1	10%	1	9%

a Percentage is based on number of systems for which a sub-state entity reports to the state.

Table D: Reporting infectious diseases to state agencies.

City/County Jail Systems (n=33)	HIV		Syphilis		Gonorrhea		Chlamydia		Active TB		HAV		HBV		HCV	
Aggregate Reporting																
Report # positive results and # total tests for time period.[a]	3	9%	2	6%	3	9%	3	9%	5	15%	2	6%	2	6%	2	6%
Report # positive results for time period.[b]	3	9%	2	6%	2	6%	2	6%	2	6%	1	3%	1	3%	1	3%
Individual Reporting																
Report all positive results and # tests.	12	36%	13	39%	13	39%	13	39%	11	33%	12	36%	12	36%	12	36%
Report all positive results.	24	73%	27	82%	27	82%	27	82%	27	82%	25	76%	25	76%	23	70%

State/Federal Prison Systems (n=47)	HIV		Syphilis		Gonorrhea		Chlamydia		Active TB		HAV		HBV		HCV	
Aggregate Reporting																
Report # positive results and # total tests for time period.[a]	2	4%	0	0%	0	0%	0	0%	1	2%	0	0%	0	0%	0	0%
Report # positive results for time period.[b]	2	4%	2	4%	2	4%	2	4%	1	2%	2	4%	2	4%	1	2%
Individual Reporting																
Report all positive results and # tests.	4	9%	5	11%	5	11%	5	11%	5	11%	5	11%	5	11%	5	11%
Report all positive results.	42	89%	42	89%	42	89%	42	89%	44	94%	39	83%	38	81%	40	85%

a Not including sites that also report positive results and total using individual identifiers.

b Not including sites that also report positive results (only) using individual identifiers.

Table E: Indicators of Correctional Systems' Readiness to Participate in National Infectious Disease Reporting

Indicator	City/County Jail Systems		State/Federal Prison Systems	
All/most health services staff have access to personal computers	26	79%	27	57%
Internet access in health services	18	55%	20	43%
Computerized inmate medical records				
Currently	13	39%	15	32%
Planned within 12 months	7	21%	7	15%
Total	20	61%	22	47%
Disease data entered into automated medical record by:				
Correctional health staff	8	62%[a]	13	87%[a]
Dedicated data entry staff	1	8%[a]	1	7%[a]
Other staff	3	23%[a]	6	40%[a]
Electronic transfer from lab	3	23%[a]	2	13%[a]
Test results entered into specific fields in automated medical record.	3	23%[a]	7	47%[a]
Computerized system for other inmate records.	18	55%	33	70%
Both automated medical and other inmate records.	10	30%	14	30%
Linked medical and other inmate records.	7	21%	8	17%
Staff trained to extract disease data.	13	39%	31	66%
Computerized medical record and trained staff.	6	18%	9	19%
Use internal corrections data to calculate disease burden.				
HIV	11	33%	30	64%
Syphilis	8	24%	20	43%
Gonorrhea	8	24%	21	45%
Chlamydia	8	24%	22	47%
TB	9	27%	28	60%
HAB	9	27%	22	47%
HBV	9	27%	22	47%
HCV	9	27%	28	60%

a Denominator is the number of systems with computerized medical records.

Table F: Co-occurrence of electronic registries or databases and electronic medical records.

City/County Jail Systems (n=33)	HIV		AIDS		Syphilis		Gonorrhea		Chlamydia		Active TB		HAV		HBV		HCV		Any disease	
N3: Yes, system has computerized systems for inmate medical records.	4	12%	4	12%	7	21%	6	18%	6	18%	8	24%	6	18%	6	18%	6	18%	8	24%
Unique non-commercial system	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%		
Comercial system	2	6%	2	6%	2	6%	2	6%	2	6%	2	6%	2	6%	2	6%	2	6%		
N3: No, system has no computerized systems for inmate medical records.	2	6%	2	6%	5	15%	4	12%	4	12%	6	18%	4	12%	4	12%	4	12%		

State/Federal Prison Systems (n=47)	HIV		AIDS		Syphilis		Gonorrhea		Chlamydia		Active TB		HAV		HBV		HCV		Any disease	
N3: Yes, system has computerized systems for inmate medical records.	15	32%	14	30%	10	21%	8	17%	8	17%	15	32%	10	21%	11	23%	16	34%	18	38%
Unique non-commercial system	4	9%	4	9%	3	6%	2	4%	2	4%	3	6%	2	4%	3	6%	3	6%		
Comercial system	4	9%	4	9%	3	6%	2	4%	2	4%	4	9%	4	9%	4	9%	4	9%		
N3: No, system has no computerized systems for inmate medical records.	7	15%	6	13%	4	9%	4	9%	4	9%	8	17%	4	9%	4	9%	9	19%		

Note: percentages are %of all systems (i.e. jail or prison systems), not just those with electronic registries.

Table G: Degree of computerization of inmate records.

City/County Jail Systems (n=33)

Does system have computerized medical records.		Does system have computerized system for other inmate records?		Are inmate medical & other records linked electronically?	
Yes, computerized.	13	Yes	10	Yes	7
				No/missing	3
		No	3		
Planned in 12 months	7	Yes	7		
		No	0		
No/No information	13	Yes	13		
		No	0		

State/Federal Prison Systems (n=47)

Does system have computerized medical records.		Does system have computerized system for other inmate records?		Are inmate medical & other records linked electronically?	
Yes, computerized.	15	Yes	14	Yes	8
				No/missing	6
		No	1		
Planned in 12 months	7	Yes	6		
		No	1		
No/No information	25	Yes	13		
		No	12		

Table H-1: Grouping of correctional systems into levels of technical capacity and readiness to participate in a disease reporting system, City/County Jail Systems (n=33).

Group A		Group B		Group C		Group D	
Jacksonville County Jail or Jail System	FL	Allegheny County Jail or Jail System	PA	District of Columbia - CTF	DC	Alameda County Jail or Jail System	CA
Pinellas County Jail or Jail System	FL	Contra Costa County Jail or Jail System	CA	Fresno County Jail or Jail System	CA	Bexar County Jail or Jail System	TX
Wayne County Jail or Jail System	MI	County of Milwaukee Jail or Jail System	WI	New York City Jail or Jail System	NY	Broward County Jail or Jail System	FL
		Franklin County Jail or Jail System	OH	Orange County Jail or Jail System	FL	Cook County Jail or Jail System	IL
		Los Angeles County Jail or Jail System	CA	Orange County Jail or Jail System	CA	Dade County Jail or Jail System	FL
		Marion County Jail or Jail System	IN	Polk County Jail or Jail System	FL	Dallas County Jail or Jail System	TX
		Oklahoma County Jail or Jail System	OK	San Bernardino County Jail or Jail System	CA	Hamilton County Jail or Jail System	OH
		Santa Clara County Jail or Jail System	CA	San Diego County Jail or Jail System	CA	Harris County Jail or Jail System	TX
		Suffolk County Jail or Jail System	MA	San Francisco City & County Jail or Jail System	CA	Kern County Jail or Jail System	CA
		Travis County Jail or Jail System	TX			Riverside County Jail or Jail System	CA
						Sacramento County Jail or Jail System	CA

Table H-2: Grouping of correctional systems into levels of technical capacity and readiness to participate in a disease reporting system, State/Federal Prison Systems (n=47).

Group A	Group B	Group C	Group D
Arkansas Department of Corrections	Colorado Department of Corrections	Federal Bureau of Prisons	California Department of Corrections
South Dakota Department of Corrections	Florida Department of Corrections	Alaska Department of Corrections	Connecticut Department of Corrections
Utah Department of Corrections	Iowa Department of Corrections System	Arizona Department of Corrections	Delaware Department of Corrections System
	Maryland Department of Corrections	Georgia Department of Corrections	Hawaii Department of Corrections
	Michigan Department of Corrections	Idaho Department of Correction	Indiana Department of Corrections
	Minnesota Department of Corrections	Illinois Department of Corrections	Montana Department of Corrections
	New Jersey Department of Corrections	Kansas Department of Corrections System	Nevada Department of Corrections
	Oregon Department of Corrections	Kentucky Department of Corrections	New Hampshire Department of
	Rhode Island Department of Corrections	Louisiana Department of Corrections	North Carolina Department of
	Texas Department of Criminal Justice	Maine Department of Corrections	Pennsylvania Department of
	Virginia Department of Corrections	Massachusetts Department of Corrections	Vermont Department of Corrections
	Wisconsin Department of Corrections	Missouri Department of Corrections	Washington Department of Corrections
	Wyoming Department of Corrections	New York Department of Corrections	
		North Dakota Department of Corrections	
		Ohio Department of Corrections	
		Oklahoma Department of Corrections	
		South Carolina Department of Corrections	
		Tennessee Department of Corrections	
		West Virginia Department of Corrections System	