Prevention and Control of Tuberculosis in Correctional and Detention Facilities: Recommendations from CDC, 2006.

Text-Only Version

Slide 1 (Title Slide): Prevention and Control of Tuberculosis in Correctional and Detention Facilities: Recommendations from CDC 2006
Centers for Disease Control and Prevention (CDC), Division of Tuberculosis Elimination
[IMAGE: Correctional facility staff person speaking with inmate.]
[IMAGE: Inmate's hands resting on cell bars.]
[IMAGE: TB drugs in patient's hand.]

Slide 2: Contents (1)

Summary of Changes from 1996 Recommendations from CDC

Background

Screening

Case Reporting

Airborne Infection Isolation

Environmental Controls

Respiratory Protection

Slide 3: Contents (2)

Diagnosis and Treatment of Latent Tuberculosis Infection (LTBI) and Tuberculosis (TB) Disease

Discharge Planning

Contact Investigation

TB Training and Education of Correctional Workers and Inmates

Program Evaluation

Collaboration and Responsibilities

References and Additional Resources

Slide 4: (Title Slide): Summary of Changes Made to the 1996 CDC Recommendations for Prevention and Control of TB in Correctional Facilities
[IMAGE: Inmate's hands resting on cell bars.]

Slide 5: Summary of Changes (1)

Target audience has been broadened to include persons working in jails and other detention facilities

Recommendation that screening procedures for inmates and detainees be based on facility assessment for risk of TB is added

TB symptom review of all inmates and detainees at entry is emphasized

Slide 6: Summary of Changes (2)

Placement of all inmates and detainees with suspected TB in airborne infection isolation (AII) immediately is emphasized

Interferon Gamma Release Assays (IGRAs) have been added to testing recommendations

Recommendations for ventilation have been added

Slide 7: Summary of Changes (3)

Recommendations for respiratory protection have been added

Treatment recommendations for TB disease and LTBI have been updated

Case management of inmates with TB disease and LTBI have been emphasized

Early discharge planning that is coordinated with local public health staff is emphasized

Slide 8: Summary of Changes (4)

Recommendations for US Immigration and Customs Enforcement detainees have been included

Collaboration between the correctional facility and public health staff is emphasized

Recommendations for comprehensive training programs to achieve and sustain TB control that are tailored by corrections and public health staff are added

Slide 9: Summary of Changes (5)

Recommendation for public health workers to be educated about the correctional environment is added

Program evaluation is emphasized

Slide 10: (Title Slide) Background
[IMAGE: Inmate's hands resting on cell bars.]

Slide 11: Incarcerated Population United States, 1980-2008

	1980	1985	1990	1995	2000	2005	2006	2007	2008
Jail	183,988	256,615	405,320	507,044	621149	747,529	765,819	780,174	785,174

Prison	319,598	487,593	743,382	1,078,542	1316333	1,446,269	1,492,973	1,517,867	1,518,559

[IMAGE: Bar graph showing the incarcerated population in the United States from 1980-2008. From 1980-2008, the total number of people in the United State incarcerated in either a jail or a prison has been steadily increasing, from approximately 500,000 in 1980 to approximately 2.3 million in 2008. Source: U.S. Department of Justice, Bureau of Justice Statistics.]

Slide 12: US Correctional TB Cases by Type of Correctional Facility

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Federal Prison	28	32	24	28	30	33	33	39	37	39	60	57	36	40	67	46
State Prison	472	474	339	300	223	190	175	177	145	131	88	137	140	111	102	109
Local Jail	407	571	539	411	446	382	346	328	282	239	257	245	268	244	216	220
Other	42	37	29	44	37	39	21	32	50	43	61	52	72	115	95	124

[IMAGE: Bar graph showing the number of US correctional TB cases by type of correctional facility from 1993-2008.]

Slide 13: Disproportionately High Percentages of TB Cases Occurring in Incarcerated Persons in the US, 2003

0.7% of the total US population were confined in prisons and jails

3.2% of all TB cases nationwide occurred among residents of correctional facilities

Slide 14: TB Case Rates

TB case rates by location and date.

United States, 1993-2006: <10 cases per 100,000 persons (general population)

New Jersey, 1994

91.2 cases per 100,000 inmates

11.0 cases per 100,000 persons among all New Jersey residents

California, 1991: 184 cases per 100,000 inmates of a California prison (10 times greater than the statewide rate)

California, 1998: 72.1 cases per 100,000 inmates in an urban jail in a high-prevalence area (10% of the county's cases that year)

New York, 1993: 139.3 cases per 100,000 inmates, an increased rate from 15.4 during 1976–78

Slide 15: Factors Contributing to High Rate of TB in Correctional and Detention Facilities

Disparate numbers of incarcerated persons are at high risk for TB

Physical structure of facilities (e.g., close living quarters, overcrowding, inadequate ventilation)

Movement of inmates into and out of overcrowded and inadequately ventilated facilities

Slide 16: Challenges with Detained Immigrants

Most come from countries with high prevalence of TB (e.g., Mexico, the Philippines, Vietnam)

Social, legal, and language barriers often make testing and treatment interventions inadequate

Some are infected with M. tuberculosis organisms resistant to first-line anti-TB drugs because of interrupted treatment received in their countries of origin

Slide 17: Rationale for Updating and Strengthening TB Control and Prevention Guidelines (1)

Transmission of M. tuberculosis continues to be documented within correctional facilities

Inmates with undiagnosed TB disease place other inmates and correctional staff at risk for TB; when released they can infect members of the community

Immediate isolation of infectious patients can interrupt transmission of M. tuberculosis

Slide 18: Rationale for Updating and Strengthening TB Control and Prevention Guidelines (2)

Prompt initiation of an adequate regimen of directly observed therapy (DOT) helps ensure adherence to treatment

Inmates have relatively high rates of human immunodeficiency virus (HIV) and if coinfected with M. tuberculosis, are at high risk for progressing from LTBI to TB disease

Treatment for LTBI can prevent the development of TB disease

Slide 19: Rationale for Updating and Strengthening TB Control and Prevention Guidelines (3)

Inmates who have TB disease or LTBI can be treated before they are released into the community

The correctional setting can be a primary source of health information, intervention, and maintenance

Slide 20: (Title Slide) Screening
[IMAGE: Inmate’s hands resting on cell bars.]

Slide 21: Screening (1)

Early identification and successful treatment of persons with TB disease is the most effective means of preventing disease transmission

Inmates who are likely to have infectious TB should be identified and started on treatment before they are integrated with other inmates

Slide 22: Screening (2)

Screening programs can also detect persons with LTBI who are at high risk for progressing to TB disease

Slide 23: Factors for Determining Screening Activities

Type of facility

Prevalence of TB infection and disease in the facility

Prevalence of TB in the inmates' communities

Prevalence of other risk factors for TB (e.g., HIV)

Average length of stay of inmates in the facility

Slide 24: Determining the Types of Screening

Determined by an assessment of the risk for TB transmission within the facility (minimal or nonminimal)

Risk assessments for facilities should be

Performed at least annually

Done in collaboration with the local or state health department

Slide 25: Definition of a Facility's TB Risk

Minimal TB Risk Facility

No cases of infectious TB within the last year

Few inmates with risk factors for TB

Few new immigrants

Employees of the facility are not otherwise at risk for TB

Nonminimal TB Risk Facility

Any facility that does not meet the criteria for Minimal TB Risk should be categorized as a Nonminimal TB Risk Facility

Slide 26: Screening Methods: Symptom Screening (1)

Initial screening should be performed by

Health-care professionals whenever possible
Or

Adequately trained correctional officers

Symptom screening alone is an unsatisfactory screening mechanism for TB except for Minimal TB Risk Facilities

[IMAGE: Health-care professional conducting an initial screening of an inmate.]

Slide 27: Screening Methods: Symptom Screening (2)

At intake, all incoming inmates should be screened for symptoms of pulmonary TB

During medical screening, inmates should be asked if they have

A history of TB

Ever been treated for LTBI or TB disease

Symptoms of TB

Slide 28: Screening Methods: Symptom Screening (3)
Suspicion of TB is high when pulmonary symptoms are accompanied by general systemic symptoms of TB.

Pulmonary Symptoms

Prolonged cough ≥ 3 weeks

Hemoptysis (bloody sputum)

Chest pain

Systemic Symptoms of TB

Fever

Chills

Night sweats

Easy fatigability

Loss of appetite

Weight loss

Slide 29: Screening Methods: Symptom Screening (4)
All inmates who have symptoms suggestive of TB disease should immediately be placed in an AII room and receive a thorough medical evaluation including

TST or IGRA

Chest radiograph

Sputum examinations (if indicated)

Slide 30: Screening Methods: Symptom Screening (5)

If an inmate has symptoms suggestive of TB disease and/or a history of inadequate treatment for TB disease, they should be placed immediately in an AII room until they have undergone a thorough medical evaluation.

If the patient is found to be noninfectious, then they may be released from AII if TB diagnosis is excluded OR after the patient improves on multidrug anti-TB treatment if suspicion for TB diagnosis remains.

If the patient is found to be infectious, they should remain in isolation until treatment has rendered patient noninfectious (see Discontinuation of Airborne Precautions.)

[IMAGE: Flowchart describing symptom screening.]

Slide 31: Screening Methods: Chest Radiograph Screening (1)

Can be an effective means of detecting new cases of unsuspected TB disease at intake

Requires fewer subsequent visits than a TST

Will not identify inmates with LTBI

Might be appropriate for facilities that

House substantial numbers of inmates for short periods

Serve populations at high risk for TB

[IMAGE: Chest radiograph.]

Slide 32: Screening Methods: Chest Radiograph Screening (2)
Factors that determine the extent to which chest radiographs are used for TB screening in a facility include

Local epidemiologic characteristics of TB disease

Inmate length of stay

Ability of staff to conduct careful histories, TST or IGRA testing, and cross-matches with state TB registries

Promptness of radiographic study and its reading (should be read within 24 hours)

Slide 33: Screening Methods: Chest Radiograph Screening (3)
In facilities that do not perform screening radiographs at admission, chest radiograph should be part of initial screening for

All HIV-infected patients

Those at risk for HIV infection, but whose status is unknown

Slide 34: Screening Methods: Chest Radiograph Screening (4) Facilities with On-site Radiographic Screening

Chest radiograph should be performed as part of intake screening.

The radiograph should be read by a physician within 24 hours.

Persons who have radiographs suggestive of TB should be isolated immediately and evaluated further. They should also receive a sputum smear and culture examination (might also be indicated for certain persons regardless of TST, IGRA, or chest radiograph results).

[IMAGE: Flowchart describing radiographic screening.]

Slide 35: Screening Methods: Mantoux Tuberculin Skin Test (TST) (1)

Most common method of testing for TB infection

Is not completely sensitive for TB disease

With symptom screening, may be the most practical approach to screening for TB disease in many facilities

[IMAGE: Health care worker administering the Mantoux tuberculin skin test on a patient's forearm.]

Slide 36: Screening Methods: Mantoux Tuberculin Skin Test (TST) (2) Persons Exempt from a TST

Persons who have any of the following:

Documented history of a positive TST result

Documented history of TB disease

Reported history of a severe necrotic reaction to tuberculin

Slide 37: Screening Methods: Mantoux Tuberculin Skin Test (TST) (3) Mantoux TST Screening

Intradermal injection of 0.1 mL of 5 tuberculin units (TU) of purified protein derivative (PPD)

Multiple puncture tests (e.g., tine test) are not recommended

A trained health-care professional should

Place the TST

Interpret the reaction 48 – 72 hours after the injection

Slide 38: Screening Methods: Mantoux Tuberculin Skin Test (TST) (4) Considered a Positive TST Result in Inmates and Correctional Facility Employees

≥ 10 mm induration is considered positive for the majority of inmates and correctional facility employees

≥ 5 mm induration is considered positive for

HIV infected persons

Recent contact of patients with TB disease

Fibrotic changes on chest radiograph consistent with previous TB disease

Organ transplant recipient or other immunocompromising condition

Suspected of having TB disease

Slide 39: Screening Methods: Mantoux Tuberculin Skin Test (TST) (5) Persons with Positive TST Results

Persons with a positive TST and no symptoms of TB disease should have a chest radiograph within 72 hours.

Persons with a positive TST and symptoms of TB disease should be evaluated immediately and placed in an AII room until TB is ruled out.

[IMAGE: Flowchart describing screening methods for persons with positive TST results.]

Slide 40: Two-Step Testing

Can reduce the number of positive TST results that would be misclassified as TST conversions due to booster effect

Should be considered for the baseline testing of persons who report no history of a recent TST and who will receive repeated TSTs as part of an institutional periodic skin-testing program

Is often not practical in jails because of the short average length of stay of inmates

Slide 41: Booster Reaction

Some people with LTBI may have negative skin test reaction when tested years after infection

Initial skin test may stimulate (boost) ability to react to tuberculin

Positive reactions to subsequent tests may be misinterpreted as a new infection

Slide 42: Anergy Testing

No longer recommended routinely for screening programs for M. tuberculosis infection in the United States

Has not been demonstrated to assist in diagnosing or excluding LTBI

Slide 43: Bacille Calmette-Guerin (BCG)

Used worldwide as a vaccine against TB

Cannot distinguish between TST reactions caused by BCG and those caused by natural mycobacterial infection, but ≥ 20-mm induration is usually NOT caused by BCG

TST is not contraindicated for persons vaccinated with BCG

The same criteria for interpretation of TST results are used for both BCG vaccinated and nonvaccinated persons

Slide 44: Screening Methods: Interferon Gamma Release Assays (IGRAs) (1)

Diagnostic tool for M. tuberculosis infection, including both TB disease and LTBI

Should be used with risk assessment, radiography, and other diagnostic evaluations

Slide 45: Screening Methods: IGRAs (2)

As with TST, cannot distinguish between LTBI and TB disease

Available data indicate that IGRAs are as sensitive as TST for detecting TB disease and more specific than TST for detecting LTBI

IGRAs can be used in all situations that currently use the TST

Slide 46: Screening Methods: IGRAs (3) Types of IGRAs

QuantiFERON®-TB Gold test (QFT-G)

QuantiFERON®-TB Gold-In-Tube test (QFT-GIT)

T-Spot TB test

[TOP IMAGE: QuantiFERON®-TB Gold test (QFT-G) testing materials.]
[BOTTOM IMAGE: T-Spot TB test testing materials.]

Slide 47: Screening Methods: IGRAs (4) Advantages of IGRAs

Results can be obtained after a single patient visit (possible cost-benefit)

Variability associated with skin-test reading can be reduced because “reading” is performed in a qualified lab

IGRA tests are not affected by previous BCG vaccination (eliminates unnecessary treatment for false-positives)

IGRA tests do not affect the result of future IGRA tests (no boosting occurs)

Slide 48: Screening Methods IGRAs (5) Limitations of IGRAs

Phlebotomy is needed

Blood specimens need to be processed within 12 – 16 hours of collection

Limited number of laboratories can process the test

Many health care workers lack clinical experience in interpreting test results

Slide 49: Use of Local Health Department TB Registry to Assist with Screening Inmates (1)

Correctional facilities and local health departments should collaborate to ensure effective TB screening in the correctional setting

During screening, inmates may provide inaccurate information due to forgetfulness, confusion, or deliberate misrepresentation

Slide 50: Use of Local Health Department TB Registry to Assist with Screening Inmates (2)

Correctional facilities and health departments should perform cross-matches using the local TB registry and search for aliases, birth dates, maiden names, and other personal information for TB suspects

Readily accessible records of previous TB history, drug susceptibility, treatment, and compliance are useful when dealing with patients with suspected TB

Slide 51: Initial Screening: Inmates in Minimal TB Risk Facilities
All inmates are evaluated upon entry for symptoms of TB.

If inmate has no TB symptoms but has risk factors for TB, provide additional screening within 7 days of arrival.

If inmate has TB symptoms, evaluate immediately to rule out infectious TB disease and keep in an AII room until they are evaluated (or transported to a facility that has an AII room).

If noninfectious, they may be released from AII room if TB diagnosis is excluded or after patient is improving on multidrug anti-TB treatment if suspicion for TB diagnosis remains.

If infectious, the inmate should remain in isolation until treatment has rendered them noninfectious.

[IMAGE: Flowchart describing initial screening in a minimal TB risk facility.]

Slide 52: Initial Screening: Inmates in Nonminimal TB Risk Prisons
All inmates are evaluated upon entry for symptoms of TB and for clinical conditions and risk factors for infection and disease.

If inmate has no TB symptoms, they will require further screening within 7 days of arrival.

If inmate has TB symptoms they must be evaluated immediately to rule out infectious TB disease and kept in an AII room until they are evaluated (or transported to a facility that has an AII room).

If noninfectious, they may be released from AII If TB diagnosis excluded or after patient is improving on multidrug anti-TB treatment if suspicion for TB diagnosis remains.

If infectious, they should remain in isolation until treatment has rendered them noninfectious.

[IMAGE: Flowchart describing initial screening in a nonminimal TB risk prisons.]

Slide 53: Initial Screening: Inmates in Nonminimal TB Risk Jails and Other Short-Term Detention Facilities (1)
All inmates are evaluated upon entry for symptoms of TB.

If inmate has no TB symptoms they will require further screening within 7 days of arrival.

If inmate has TB symptoms they must be evaluated immediately to rule out infectious TB disease and kept in an AII room until they are evaluated (or transported to a facility that has an AII room).

If noninfectious, they may be released from AII If TB diagnosis excluded or after patient is improving on multidrug anti-TB treatment if suspicion for TB diagnosis remains.

If infectious, they should remain in isolation until treatment has rendered them noninfectious.

[IMAGE: Flowchart describing initial screening in a nonminimal TB risk jails and other short-term detention facilities.]

Slide 54: Inmates in Nonminimal TB Risk Jails and Other Short-Term Detention Facilities (2)

Primary purpose of screening in correctional settings is to detect TB disease

TST or IGRA screening is often not practical for the purpose of initiating LTBI therapy because of the high rate of turnover and short lengths of stay

Slide 55: Inmates in Nonminimal TB Risk Jails and Other Short-Term Detention Facilities (3)

Treating LTBI in the jail setting is most effective if resources dedicated to discharge planning and reliable access to community-based treatment are available

Some interventions (e.g., education and incentives) can lead to

Improvements in linking released detainees to post-release medical care

An increase in the likelihood that LTBI treatment will be completed

Slide 56: Screening Persons in Holding or Booking Facilities
Provide TB symptom screening at the time of entry for all persons. For those with TB symptoms: immediately isolate and transfer to a facility or hospital that has an AII room and evaluate for TB disease.

Slide 57: Screening New Employees in All Correctional and Detention Facilities
Evaluate all new employees at time of hiring with medical history related to TB and a physical examination for TB disease.

Employees with no documented history of a positive TST or IGRA result should receive a TST or IGRA (those not tested during the preceding 12 months should receive two step TST or single step IGRA).

If an employee has a positive TST or IGRA result, they should have a chest radiograph and a medical evaluation.

If an employee has a positive test result but does not have TB disease, LTBI treatment should be considered.

If an employee has TB disease, they should be told NOT to work until no longer infectious.

[IMAGE: Flowchart describing screening new employees in all correctional and detention facilities.]

Slide 58: Other Persons Who Need to Be Screened

People who are neither inmates nor employees but who visit high-risk facilities on a regular basis should be considered for screening (e.g., food handlers, service workers, volunteers, and those providing religious ministries)

Screening should follow the same procedures as for employees

Slide 59: Periodic Screening of Inmates and Employees

Long-term inmates and all employees who have a negative baseline TST or IGRA result should have follow-up testing at least annually

Persons who have a history of a positive test result should be screened for symptoms of TB disease at least annually

Annual chest radiographs are unnecessary for the follow-up evaluation of infected persons

Slide 60: HIV Counseling, Testing, and Referral

Provide routine HIV counseling, testing, and referral to inmates and correctional facility staff with LTBI or TB disease if their HIV infection status is unknown at the time of their TB diagnosis

Slide 61: Use of Data to Refine Policies and Procedures

Collect and analyze data on the effectiveness of the facility screening policies and procedures

Refine policies and procedures based on the data

Slide 62: (Title Slide) Case Reporting
[IMAGE: Inmate's hands resting on cell bars.]

Slide 63: Requirements for Case Reporting

All states require reporting of suspected and confirmed cases of TB to their local or state health department

Correctional facility medical staff should report any suspected or confirmed TB cases among inmates or employees to the health agency designated by state and local laws and regulations

Slide 64: Reporting Drug Susceptibility Results
Report drug susceptibility results to

The state or local health department for use in monitoring rates of drug resistance

All health departments managing the infectious person's contacts to help determine the LTBI treatment regimen

Slide 65: (Title Slide) Isolation in an Airborne Infection Isolation (AII) Room
[IMAGE: Inmate's hands resting on cell bars.]

Slide 66: Initiation of TB Airborne Precautions
Initiate for any patient with the following:

Signs orsymptoms of TB disease
Or

Documented TB disease andhas NOT completed treatment orhas NOT been determined previously to be noninfectious

Slide 67: Remaining in an AII Room
All patients with confirmed TB disease should remain in an AII room while incarcerated until they have had ALL of the following:

3 consecutive negative AFB sputum-smear results collected 8–24 hours apart, with at least 1 being an early morning specimen

Standard multidrug anti-TB treatment

Demonstrated clinical improvement

Slide 68: Discontinuation of Airborne Precautions for Suspected TB

Infectious TB is considered unlikely AND another diagnosis is made that explains the clinical syndrome
Or

The patient has 3 negative acid-fast bacilli (AFB) sputum-smear results

Should be collected 8–24 hours apart

At least one should be an early morning specimen

If AFB sputum negative and suspicion for TB remains, should be started on 4 drugs before release from AII room

Slide 69: (Title Slide) Environmental Controls
[IMAGE: Inmate's hands resting on cell bars.]

Slide 70: Environmental Controls (1)

Should be implemented when the risk for TB transmission persists despite efforts to screen and treat infected inmates

Used to remove or inactivate M. tuberculosis in areas in which the organism could be transmitted

Slide 71: Environmental Controls (2)

Primary environmental controls

Control the source of infection with local exhaust ventilation

Secondary environmental controls

Control airflow to prevent contamination of air adjacent to the source or clean air using a high-efficiency particulate air (HEPA) filter or ultraviolet germicidal irradiation (UVGI)

Slide 72: Airborne Infection Isolation (AII) Rooms

Inmates known or suspected to have TB disease should be placed in an AII room or AII cell

Inmates deemed infectious should remain in isolation until treatment or further evaluation has ensured they are noninfectious

Facilities without an on-site AII room should have a written plan for referring patients with suspected or confirmed TB to a facility that can isolate, evaluate, and treat TB patients

Slide 73: Environmental Control Maintenance

To be most effective, environmental controls should be installed, operated, and maintained correctly

TB infection-control plans should include ongoing maintenance and identify

Responsibility and authority for maintenance

Staff training needs

Routine preventive maintenance should be scheduled and cover all components of the ventilation systems and air-cleaning devices

Slide 74: (Title Slide) Respiratory Protection
[IMAGE: Inmate's hands resting on cell bars.]

Slide 75: Considerations for Selection of Respirators
Respiratory protection is used

When administrative and environmental controls alone have not reduced the risk for infection with M. tuberculosis to an acceptable level

For specific settings and situations

Entering AII rooms

Transporting infectious inmates

Participating in cough-inducing procedures

Slide 76: Respirators
Respirators should be selected from those approved by CDC/National Institute for Occupational Safety and Health (NIOSH) – www.cdc.gov/niosh
[IMAGE: Female health care worker wearing an N-95 particulate respirator.]
[IMAGE: Male health care worker wearing an N-95 particulate respirator.]

Slide 77: Implementing a Respiratory Protection Program

All facilities should develop, implement, and maintain a respiratory protection program for health-care workers or other staff who use respiratory protection

Respiratory protection programs are required for facilities covered by the US Occupational Safety and Health Administration (OSHA)

Slide 78: Key Elements of a Respiratory Protection Program

Assignment of responsibility

Training

Fit testing

Slide 79: Precautions for Transporting Patients Between Correctional or Detention Facilities (1):
Transporting in an ambulance

Transport patients with suspected or confirmed infectious TB disease in an ambulance whenever possible

Operate the ventilation system in the noncirculating mode with maximum amount of outdoor air provided

Use a rear exhaust fan if possible

Airflow should be from the cab, over the patient, and out the rear exhaust

Slide 80: Precautions for Transporting Patients Between Correctional or Detention Facilities (2):
Transporting in a vehicle that is NOT an ambulance

Ventilation system should bring in as much outdoor air as possible

Set ventilation system to noncirculating

Isolate the cab from the rest of the vehicle if possible

Place patient in the rear seat

Slide 81: Precautions for Transporting Patients Between Correctional or Detention Facilities (3):
Transporting in a vehicle that is NOT an ambulance

Drivers and other persons should wear at least an N95 disposable respirator

If the patient has signs or symptoms of infectious TB, the patient should wear a surgical or procedure mask during transport, in waiting areas, or when others are present

Slide 82: (Title Slide) Diagnosis and Treatment of Latent Tuberculosis Infection and Tuberculosis Disease
[IMAGE: Inmate's hands resting on cell bars.]

Slide 83: TB Disease Symptoms

Persistent cough (≥ 3 weeks)

Hemoptysis (coughing up blood)

Night sweats

Weight loss

Anorexia

Fever

Slide 84: Diagnostic Tests for TB Disease and LTBI

TST

IGRA

Chest radiograph

Laboratory examination of sputum samples or other body tissues and fluid

Slide 85: Criteria for Evaluation of Correctional Facility Staff and Inmates with LTBI for TB Disease by Test Result (1)

Purpose	TST Result	IGRA Result
Baseline	≥ 10 mm* (either 1st or 2nd step)	Positive single-step test result
Serial testing (no known exposure)	Increase of ≥ 10 mm	Change from negative to positive
Known exposure (close contact)	≥ 5 mm in those with a baseline TST of 0 mm Increase of ≥ 10 mm in those with baseline or previous follow-up screening TST result of <10 mm	Change from negative to positive

* See footnote on next slide

Slide 86: Criteria for Evaluation of Correctional Facility Staff and Inmates with LTBI for TB Disease by Test Result (2) (Footnote)

* Except for persons in whom 5 mm is considered positive:

Persons infected with HIV

Persons who are recent contacts of patients with TB disease

Persons with fibrotic changes on chest radiograph consistent with previous TB disease

Organ transplant recipients and patients with other immunocompromising conditions (e.g., persons receiving >15 mg/day of prednisone for 1 month)

Persons suspected of having TB disease

Slide 87: Special Considerations in Interpreting the TST

Interpretation may be complicated by

Vaccination with BCG

Anergy

Boosting effect

Slide 88: Correctional Staff and Inmates who Refuse Testing for M. tuberculosis Infection

Educate the person on the importance of routine screening of correctional facility staff and inmates

If the person continues to refuse a TST, offer an IGRA test (and vice versa)

Slide 89: IGRA Test Results and Interpretation

Positive IGRA result

Clinical interpretation: M. tuberculosis infection likely; medical evaluation indicated

Negative IGRA result

Clinical interpretation: M. tuberculosis infection unlikely but cannot be excluded, especially when illness is consistent with TB disease and likelihood of progression to TB disease is increased

Indeterminate IGRA result

Clinical interpretation: Not possible to determine likelihood of M. tuberculosis infection from blood sample supplied

Slide 90: Interpreting Chest Radiographs: Persons with Suspected Pulmonary TB (1)

Multiple types of abnormalities strongly suggest pulmonary TB disease:

Upper-lobe infiltration

Cavitation

Pleural effusion

Infiltrates can be patchy or nodular and observed in the apical or subapical posterior upper lobes or superior segment of the lower lobes

[IMAGE: Doctor reviewing a chest radiograph.]

Slide 91: Interpreting Chest Radiographs: Persons with Suspected Pulmonary TB (2)

Radiographic presentation of pulmonary TB in HIV-infected persons may be atypical

In these persons, apical cavitary disease is less common than in HIV-uninfected patients

More common findings include infiltrates in any lung zone, mediastinal or hilar adenopathy, or in rare cases, a normal chest radiograph

Slide 92: Interpreting Chest Radiographs: Persons with LTBI

Exclude pulmonary TB disease with a chest radiograph for all persons with LTBI

Persons with LTBI typically have normal chest radiographs

If chest radiographs do not indicate pulmonary TB and no symptoms consistent with TB disease are present, persons with positive test results for TB infection should be considered for treatment of LTBI

Slide 93: Evaluation of Sputum Samples

Sputum examination is a key diagnostic procedure for pulmonary disease and is indicated for the following inmates and correctional facility staff:

Persons suspected of having pulmonary TB disease based on chest radiograph or symptoms

HIV-infected persons with any pulmonary TB symptoms regardless of chest radiograph findings

Persons suspected of having pulmonary TB for which bronchoscopy is planned

[IMAGE: TB suspect coughing a sputum sample into a sterile container.]

Slide 94: Specimen Collection (1)

Collect at least 3 sputum specimens

8–24 hours apart

At least 1 specimen in the early morning

Preferably in a sputum induction booth or an AII room

Outdoors in resource-limited settings

Observed by a health-care professional if possible

Slide 95: Specimen Collection (2)

Instruct patients how to produce an adequate sputum specimen

For patients who are unable to produce an adequate sputum specimen, induce by inhalation of an aerosol of warm hypertonic saline

Slide 96: Laboratory Examination

Detection of AFB in stained smears can provide the first mycobacteriologic indication of TB disease

Definitive identification of M. tuberculosis can only be made with a culture or nucleic acid amplification (NAA)

[TOP IMAGE: Acid-fast bacilli in sputum smear.]
[BOTTOM IMAGE: Colonies of M. tuberculosis growing on solid media.]

Slide 97: Laboratory Examination (1)

Sputum Smear

Time: usually within 1 day

Basis of procedure: look for AFB on slide under microscope

Significance of test: detection of mycobacteria

Significance of a negative report: patient is less likely to be infectious; does NOT exclude TB disease

Culture

Time: usually within 28 days

Basis of procedure: look for colonies of tubercle bacilli or other mycobacteria on culture media in incubator

Significance of test: definitive identification of specific mycobacteria species necessary for confirmation of TB and for drug susceptibility

Significance of a negative report: no live tubercle bacilli found in the specimen; does not rule out TB disease (live tubercle bacilli may be in other specimens and/or in the patient)

Slide 98: Laboratory Examination (2)

Sputum Smear

Significance of a positive report: patient is more likely to be infectious (if AFB are tubercle bacilli); AFB could be nontuberculous mycobacteria

Report positive results: within 24 hours of collection

Culture

Significance of a positive report: confirms diagnosis of TB disease

Report positive results: within 24 hours of notation of a positive culture

Slide 99: Drug-Susceptibility Tests

Perform on initial isolates from all patients with TB disease

Repeat if

Sputum specimens continue to be culture-positive 3 months after initiation of treatment

A patient’s culture that had converted to negative subsequently reverts to positive

[IMAGE: Drug-susceptibility testing on solid media.]

Slide 100: Drug-Susceptibility Testing

When results are available, adjust the treatment regimen accordingly

Medical providers treating patients with drug-resistant TB disease should seek expert consultation and collaborate with the local health department for treatment decisions

Slide 101: Treatment for LTBI

Reduces the risk that TB infection will progress to TB disease

Before treatment is started, rule out TB disease by

History

Medical examination

Chest radiograph

Mycobacteriologic studies (when needed)

[IMAGE: Pills.]

Slide 102: Candidates for Treatment of LTBI (Correctional Facility Staff and Inmates) (1)

High-risk groups with a ≥ 5 mm TST result, regardless of age:

HIV-infected persons

Recent contacts of a TB patient

Persons with fibrotic changes on chest radiograph consistent with previous TB disease

Patients with organ transplants and other immuno-compromising conditions who receive the equivalent of ≥ 15 mg/day of prednisone for ≥ 1 month

Slide 103: Candidates for Treatment of LTBI (Correctional Facility Staff and Inmates) (2)

All others with a ≥ 10 mm TST result

Positive IGRA result

Slide 104: Common Drug Regimens for Treatment of LTBI (administered by DOT) (1)

Drugs	Duration (mos)	Interval	No. of Doses	Rating (Evidence) †	
				HIV -	HIV +
Isoniazid	9	Daily	270	A (II)	A (II)

		Twice wkly	78	B (II)	B (II)
Isoniazid	6	Daily	180	B (I)	C (I)
		Twice wkly	52	B (II)	C (I)
Rifampin*	4	Daily	120	B (II)	B (III)

Slide 105: Common Drug Regimens for Treatment of LTBI (administered by DOT) (2)

(Footnotes)

* Substitution of rifabutin for rifampin might be indicated in HIV-infected patients taking certain antiretroviral medications because drug-drug interaction might be less frequent when rifabutin is used

†Ratings are based on modification of the U.S. Public Health Service rating system (American Thoracic Society, CDC. Targeted tuberculin testing and treatment of latent TB infection)

A = Preferred

B = Acceptable alternative

C = Offer when A and B cannot be given

I= Randomized clinical data

II = Data from clinical trials that were not randomized or were conducted in other populations

III = Expert opinions

Slide 106: Contacts of Patients with Drug-Susceptible TB Disease (1)

Contacts of patients with drug-susceptible TB disease who once tested negative but subsequently have a positive TST result (i.e., ≥ 5 mm) should be evaluated for treatment of LTBI

Majority of persons who are infected will have a positive TST result within 6 weeks of exposure

Retest those who have initial negative TST result 8–10 weeks after exposure

Slide 107: DOT for LTBI Patients

LTBI patients who should receive DOT

All patients on intermittent treatment

Use DOT with daily dosing of LTBI treatment whenever feasible

Patients with highest priority for DOT

Persons with HIV infection

Recent contacts of infectious patients with pulmonary TB

Slide 108: Contacts of Patients with Drug-Susceptible TB Disease (2)

Consider the following high-risk groups for LTBI treatment:

HIV-infected persons (regardless of TST result or previous LTBI treatment history)

Persons receiving immunosuppressive therapy (regardless of TST result or previous LTBI treatment history)

Persons with a known documented (previous to current exposure) positive TST result if they have not been previously treated

Slide 109: Contacts of Patients with Drug-Resistant TB Disease (3)

Treatment for LTBI caused by drug-resistant M. tuberculosis organisms is complex

Should be conducted in consultation with the local health department TB control program and persons with expertise in the medical management of drug-resistant TB

Will require waiting for drug-susceptibility testing results

Slide 110: Treatment for TB Disease

A decision to initiate treatment should be made based on

Epidemiologic information

Clinical, pathological, and radiographic findings

Results of microscopic examination of AFB-stained sputum smears

Results of cultures for mycobacteria

[IMAGE: Pill bottles.]

Slide 111: Initial Drug Regimens for Culture-Positive Pulmonary TB Caused by Drug-Susceptible Organisms (1)

Regimen	Drug	Interval	Dose	Minimum Duration
1	Isoniazid Rifampin * Pyrazinamide Ethambutol †	Daily	56	8 weeks
2	Isoniazid Rifampin * Pyrazinamide Ethambutol †	Daily, then twice weekly §	14 daily, then 12 twice weekly	2 weeks daily, then 6 weeks twice weekly
Other	See sources cited on the next slide for less commonly used regimens			

* See footnotes on next slide

Slide 112: Initial Drug Regimens for Culture-Positive Pulmonary TB Caused by Drug-Susceptible Organisms (2) (Footnotes)

Source: Modified from American Thoracic Society, CDC, Infectious Diseases Society of America. Treatment of tuberculosis. MMWR 2003; 52(No. RR-11):1-80

* Substitution of rifabutin for rifampin might be indicated in HIV-infected patients taking certain antiretroviral medications because drug-drug interaction might be less frequent when rifabutin is used

† May be discontinued if the infecting organism is confirmed to be susceptible to isoniazid and rifampin

§ Not recommended for HIV-infected patients with CD4+ T-lymphocyte cell counts of <100 cells/mm3. Additional information is available at http://www.cdc.gov/tb/publications/guidelines/TB_HIV_Drugs/default.htm(http://wwwdev.cdc.gov/tb/testrdsite/publications/guidelines/tb_hiv_drugs/default.htm)

Slide 113: Continuation Phase Options for Initial Drug Regimens 1 and 2 (1)

Regimen	Option	Drugs	Interval	Doses	Minimum Duration *	Rating (evidence) †	
						HIV – §	HIV + ¶
1	a	Isoniazid Rifampin **	Daily	126	18 weeks	A (I)	A (II)
1	b	Isoniazid Rifampin **	Twice weekly † †	36	18 weeks	A (I)	A (II)
2	a	Isoniazid Rifampin **	Twice weekly † †	36	18 weeks	A (II)	B (I)
Other	Refer to American Thoracic Society, CDC, Infectious Diseases Society of America. Treatment of tuberculosis. MMWR 2003;52 (No. RR-11):1-80 for less commonly used options						

* See footnotes on next 2 slides

Slide 114: Continuation-Phase Options for Initial Drug Regimens 1 and 2 (2)

(Footnotes)

* Patients with cavitation on initial chest radiograph and positive cultures at completion of 2 months of therapy should receive a 7-month (31 wks; either 217 doses [daily] or 62 doses [twice wkly]) continuation phase

† Ratings are based on modification of the U.S. Public Health Service rating system (American Thoracic Society, CDC, Infectious Diseases Society of America. Treatment of tuberculosis. MMWR 2003; 52 [No. RR-1]:1-80)

A = Preferred

B = Acceptable alternative

C = Offer when A and B cannot be given

I= Randomized clinical data
II = Data from clinical trials that were not randomized or were conducted in other populations
III = Expert opinions

Slide 115: Continuation-Phase Options for Initial Drug Regimens 1 and 2 (2)
(Footnotes cont.)
§ Human immunodeficiency virus (HIV)-negative
¶ HIV-infected
** Substitution of rifabutin for rifampin might be indicated in HIV-infected patients taking certain antiretroviral medications because drug-drug interaction might be less frequent when rifabutin is used
†† Not recommended for HIV-infected patients with CD4+ T-lymphocyte cell counts <100 cells/mm3.
Additional information is available at http://www.cdc.gov/tb/publications/guidelines/TB_HIV_Drugs/default.htm(http://wwwdev.cdc.gov/tb/testrdsite/publications/guidelines/tb_hiv_drugs/default.htm)

Slide 116: Adherence to Treatment

The primary determinant of treatment outcome is patient adherence to the drug regimen

Measures should be designed to enable and foster adherence

DOT should be used throughout the entire course of therapy whenever feasible

DOT should be coordinated with the local health department on an inmate's release

Local health department also may be involved in monitoring therapy for correctional facility staff

Slide 117: (Title Slide) Discharge Planning
[IMAGE: Inmate's hands resting on cell bars.]

Slide 118: Discharge Planning
Correctional facilities' discharge planning process should include

Collaborating with public health and other community health-care professionals

Ensuring continuity of case management

Evaluating discharge-planning procedures and modifying procedures as needed to improve outcomes

Slide 119: Collaboration Between Correction Facilities and Public Health Officials for Discharge Planning (1)
Collaboration should address the following:

Short length of stay in a facility

Unscheduled release or transfer

Poorly defined or implemented channels of communication between correctional and public health authorities

Limited resources (i.e., staff, equipment, and medications) available to provide recommended TB prevention, screening, treatment, and discharge planning services

Slide 120: Collaboration Between Correction Facilities and Public Health Officials for Discharge Planning (2)

Collaboration should address the following:

Limited resources of the patient to make or keep appointments

High prevalence of mental illness and substance abuse among correctional patients

Mistrust among inmates, which might result in the provision of aliases or incorrect contact or locating information

Reincarceration, with disruption in treatment or termination of public health benefits

Slide 121: Comprehensive Discharge Planning

Implement for inmates with confirmed TB disease, suspected TB disease, and LTBI who are at high risk for progression to TB disease

All inmates who have begun therapy for LTBI in a correctional facility should be given community contact information for follow-up and continuity of care

Discharge planning should begin in the detention phase and continue in the post detention phase to ensure continuity of care

Slide 122: Components of Discharge Planning (1)

Initiate discharge planning early

Provide case management

Obtain detailed contact information

Assess and plan for substance abuse and mental health treatment and other social services

Slide 123: Components of Discharge Planning (2)

Make arrangements for post-release
follow-up

Make provisions for unplanned release and unplanned transfers

Provide education and counseling

Slide 124: DOT for TB Disease or LTBI in the Correctional Setting

Provides an opportunity for educating and counseling inmates

Establishes a routine of medication administration (this may enhance adherence after release)

Slide 125: Community-Based Case Management After Release (1)

Case-management strategies begun in the correctional facility should be continued after release for former inmates with

Confirmed or suspected TB disease

LTBI who are at high risk for progression to TB

Slide 126: Community-Based Case Management after Release (2)

Incentives combined with education and counseling optimize both short-and long-term adherence

Case management results in improved LTBI treatment completion rates if cultural differences and patient-defined needs are addressed

Slide 127: Discharge Planning for Immigration and Customs Enforcement Detainees (1)

Persons with TB disease detained by Immigration and Customs Enforcement (ICE) officers are a potential public health threat because they are

Typically highly mobile

Likely to leave and reenter the United States before completion of TB therapy

At high risk for interrupting treatment

Slide 128: Discharge Planning for Immigration and Customs Enforcement Detainees (2)

Ensuring treatment of such detainees is important to the national strategy to eliminate TB in the United States

Correctional facility staff should identify patients who are ICE detainees when reporting TB cases to local and state health departments

Slide 129: (Title Slide) Contact Investigation
[IMAGE: Inmate's hands resting on cell bars.]

Slide 130: Overview of TB Contact Investigation (1)

Overall goal is to interrupt transmission of M. tuberculosis

Ongoing transmission is prevented by

Identifying, isolating, and treating persons with TB disease

Identifying infected contacts of the source patient and secondary patients and providing them with a complete course of treatment for LTBI

Slide 131: Overview of TB Contact Investigation (2)

The contact investigation can serve to

Educate corrections staff and inmates about the risk, treatment, and prevention of TB in correctional facilities

Inform staff and inmates regarding the importance of engaging in recommended TB-control practices and procedures within the correctional system

Emphasize the importance of completion of therapy for persons with TB disease and LTBI

Slide 132: Overview of TB Contact Investigation (3)

Requires a multidisciplinary team

Health departments can help in planning, implementing, and evaluating a TB contact investigation

Data collection and management is an essential component and requires a systematic approach to collecting, organizing, and analyzing TB-associated data

Slide 133: Overview of TB Contact Investigation (4)

Two correctional information systems critical to the efficient conduct of a contact investigation:

An inmate medical record system containing TST results and other relevant information

An inmate tracking system

Slide 134: TB Transmission Factors (1)

Source patient has high likelihood of transmission if:

AFB smear-positive

Cavitary disease

Delayed diagnosis

Contacts have high likelihood of transmission if:

Age

Infants and children < 4 years of age

Immunosuppression

HIV infected

Other forms of immune suppression

Other medical conditions

Slide 135: TB Transmission Factors (2)

Exposure. High likelihood of transmission if

Air volume

Low air volume

Confined space

Ventilation

Confined air with little or no ventilation

Recirculated air without HEPA filtration

Duration of exposure

Longer and frequent exposure

Slide 136: Decision to Initiate a Contact Investigation (1)

Make decisions to conduct contact investigations on a case-by-case basis

Conduct contact investigations in conjunction with the public health department

Slide 137: Decision to Initiate a Contact Investigation (2)

Conduct contact investigations in the following circumstances:

Suspected or confirmed pulmonary, laryngeal, or pleural TB with cavitary disease on chest radiograph or positive AFB smears (sputum or other respiratory specimens)

Suspected or confirmed pulmonary (noncavitary) or pleural TB with negative AFB smears (sputum or other respiratory specimens) and a decision has been made to initiate TB treatment

Slide 138: Principles for Conducting the Contact Investigation (1)

Stratify identified contacts by their duration and intensity of exposure to the source patient

Classify HIV-infected and other immunosuppressed contacts as the highest priority group for screening and initiation of LTBI therapy, regardless of duration and intensity of exposure

Slide 139: Principles for Conducting the Contact Investigation (2)

Immediately screen groups of contacts identified with the greatest degree of exposure, follow with repeat testing at 8–10 weeks if the initial TST or IGRA is negative

Calculate the infection rate to assess the level of TB transmission

Slide 140: Principles for Conducting the Contact Investigation (3)

Make decisions to expand the contact investigation to groups with less exposure on the basis of the calculated infection rate

If no evidence of transmission is observed, do NOT expand the investigation

If transmission is occurring, expand the investigation incrementally to groups with less exposure

Include corrections and medical staff in the contact investigation, depending on their exposure risks

Slide 141: Contact Investigation Stepwise Procedures (1)

Notify correctional management officials

Conduct a source patient chart review

Interview the source patient

Define the infectious period

Convene the contact investigation team

Update correctional management official

Obtain source case inmate traffic history

Tour exposure sites

Slide 142: Contact Investigation Stepwise Procedures (2)

Prioritize contacts

Develop contact lists

Conduct a medical record review on each high-priority contact

Evaluate HIV-infected contacts for TB disease and LTBI promptly

Place and read initial TST or perform IGRA on eligible contacts

Make referrals for contact evaluation

Slide 143: Contact Investigation Stepwise Procedures (3)

Calculate the infection rate and determine the need to expand the investigation

Place and read follow-up TST or perform follow-up IGRA

Determine the infection/transmission rate

Write a summary report

Slide 144: Medical Evaluation of Contacts

Appropriate medical evaluation depends on both the immunologic status of the contact and previous TST or IGRA result

Adequate knowledge of these data is possible only through use of a medical record system that is complete, up-to-date, and reliable with regard to TST or IGRA status, testing date, and documentation of the reading in millimeters (for TST)

Without an adequate medical record system, the true infection and transmission rates cannot be determined

Slide 145: Medical Evaluation of All Contacts

All contacts: Interview for symptoms of TB disease using a standard symptom questionnaire

If contact has no TB symptoms but has risk factors, provide additional screening within 7 days of arrival.

If HIV status is unknown, consider HIV testing

If contact has TB symptoms, they should receive a chest radiograph and a complete medical evaluation by a physician, regardless of TST or IGRA status.

Inmates should be isolated in an AII room if infectious TB is suspected by chest radiograph or clinical findings.

Symptomatic staff should not be permitted to work.

[IMAGE: Flowchart describing medical evaluation of all contacts.]

Slide 146: Medical Evaluation of Contacts: Inmates with Documented Previous Positive TST or IGRA Result

All inmates with documented previous positive TST or IGRA result: interview for symptoms of TB disease using a standard symptom questionnaire

If inmate has no TB symptoms: Need no further follow-up, other than consider for routine treatment of LTBI (if not completed in the past)

If inmate has TB symptoms: Receive further evaluation (e.g., chest radiograph for persons with respiratory symptoms)

[IMAGE: Flowchart describing medical evaluation of contacts with documented previous positive TST or IGRA result.]

Slide 147: Medical Evaluation of Contacts: HIV-Infected Inmates (1)

HIV-infected contacts should

Be interviewed for symptoms

Have a TST or IGRA

Have a chest radiograph

Complete a course of treatment for LTBI (once TB disease has been ruled out) regardless of the TST or IGRA result

Slide 148: Medical Evaluation of Contacts: HIV-Infected Inmates (2)

Treatment should be initiated even for persons with a history of previous treatment of LTBI or TB disease because of the possibility of re-infection

Those with a history of a negative TST or IGRA result should have a TST or IGRA done at baseline and again in 8–10 weeks

Slide 149: Medical Evaluation of Contacts: HIV-Negative Inmates with Previous Negative TST or IGRA

Conduct mandatory TST or IGRA testing of all previously negative (HIV and TST or IGRA) inmate contacts at baseline (unless previously tested within 1–3 months of exposure)

Repeat testing 8–10 weeks from the most recent contact with the source patient

Slide 150: Medical Evaluation of Contacts: TST and IGRA Converters

Offer treatment for LTBI (unless medically contraindicated) to

Persons whose TST or IGRA result converts to positive
Or

Persons with newly documented positive TST or IGRA results

Inmate contacts who refuse medically indicated treatment for LTBI should be monitored regularly for symptoms

Slide 151: (Title Slide) Tuberculosis Training and Education of Correctional Workers and Inmates
[IMAGE: Inmate's hands resting on cell bars.]

Slide 152: TB Training and Education of Correctional Workers and Inmates

Correctional facilities and local or state health departments should collaborate when providing TB training and education

Routine TB education should be provided for all persons who spend significant time in the facility; additional training should be given to any employee who will interact with persons at risk for TB

TB training and education efforts and other TB-related events should be documented to ensure these programs can be evaluated and updated

Slide 153: Training and Education in Correctional Facilities

In-facility, preservice training or orientation should include training and education on M. tuberculosis for people who spend significant time in correctional facilities, and can include

Correctional workers

Volunteers

Inmates

Other persons

TB training should be provided at least annually thereafter

Slide 154: Initial Training and Education for All Correctional Workers (1)
For all correctional workers* include

M. tuberculosis transmission signs, symptoms, diagnosis (difference between LTBI and TB disease), and prevention

Importance of following up on inmates or correctional workers demonstrating signs or symptoms of TB disease

Initiation of AII precautions for inmates with suspected or confirmed TB disease

*Level and detail will vary according to job responsibilities

Slide 155: Initial Training and Education for All Correctional Workers (2)
For all correctional workers* include

Policies and indications for discontinuing AII precautions

Basic principles of LTBI and TB disease treatment

TB disease in immunocompromised persons

*Level and detail will vary according to job responsibilities

Slide 156: Required Training for Correctional Workers in Facilities with AII Rooms
For all correctional workers in facilities equipped with AII rooms include

Use of administrative and engineering controls and personal protective equipment

Respiratory protection program

Slide 157: Enhanced Training and Education for Correctional Workers in High-Risk Facilities (1)

Signs and symptoms of TB disease

Transmission of TB disease

TB infection-control policies (including instruction on and location of the facility's written infection-control policies and procedures, exposure control plan, and respiratory protection plan)

Slide 158: Enhanced Training and Education for Correctional Workers in High-Risk Facilities (2)
If a contact investigation is conducted because of suspected or confirmed infectious TB include

Contact investigation guidelines

Method used to determine a contact's risk for infection and prioritization for evaluation and treatment

Noninfectiousness of persons with TB disease who have responded to therapy and have submitted 3 AFB-negative sputum smear results

Patient confidentiality issues

Slide 159: Training and Education of Public Health Department Staff (1)
Should include (but not limited to) the following topics:

TB-related roles of correctional facility and health department staff

Methods of effectively collaborating with correctional facilities

Differences between and among jails, prisons, and other forms of detention facilities

Slide 160: Training and Education of Public Health Department Staff (2)
Should include (but not limited to) the following topics:

Correctional culture and the importance of respecting the mission and purpose (i.e., custody) of correctional facilities and correctional workers

The health department's role in case management, contact investigation, and the discharge of inmates

The effect of the custody and movement of foreign detainees on local facilities

Slide 161: Training and Education of Inmates
Using appropriate terms for education level and language include

General TB information (provided at the time of admission or when being screened for TB)

The meaning of a positive TST or IGRA result and treatment options for LTBI

Comprehensive TB education, including infectiousness and treatment for inmates being confined with suspected or confirmed TB disease

The importance of completing treatment for inmates with LTBI or TB disease

Slide 162: (Title Slide) Program Evaluation
[IMAGE: Inmate's hands resting on cell bars.]

Slide 163: Six Steps for Monitoring and Evaluation of a TB Prevention and Control Program

Identifying collaborators

Describing the TB-control program

Focusing the evaluation to assess facility TB risk and performance

Collecting and organizing data

Analyzing data and forming conclusions

Using the information to improve the TB program

Slide 164: Identifying Collaborators

TB control requires collaboration of

Correctional system

Health departments

Other community agencies

Early engagement of collaborators

Ensures that evaluation will yield most useful information for stakeholders

Promotes mutual cooperation for constructive change

Each program should have a designated person responsible for data quality and program evaluation

Slide 165: Describing the Program

Evaluators should be knowledgeable about

Program goals and objectives

Strategies

Expected program-associated results

How the program fits into the larger organization and community

All stakeholders should agree on program goals before the evaluation is undertaken

Slide 166: Focusing the Evaluation to Assess Risk and Performance Risk Assessment (1)
Each facility should annually assess its level of TB risk and include the following indicators:

Burden of disease

Community rates of TB disease

Number of cases of TB disease in the facility during the preceding year

Number and percentage of staff and inmates with LTBI

Slide 167: Focusing the Evaluation to Assess Risk and Performance Risk Assessment (2)
Each facility should annually assess its level of TB risk and include the following indicators:

Facility transmission

Number and percentage of staff and inmates with TST conversion and reasons for conversion

Number of TB exposure incidents (contact investigations)

Evidence of person-to-person transmission

Slide 168: Performance Measurement for Improving Quality Examples

Timeliness of screening and isolation

Treatment

Continuity of care

Slide 169: Assessment of Collaboration (conduct annually)
Each facility should

Assess its relationship with local and state public health departments in

Screening

Containment

Assessment

Meet with respective public health staff to review facility

TB risk

Policies

Compliance with environmental control and respiratory protection recommendations

Slide 170: Collecting and Organizing Data (1)

Data sources

Review medical records

Annually, for facilities that house persons with confirmed or suspected TB disease (including low-risk facilities)

Quarterly, for facilities with numerous cases

Slide 171: Collecting and Organizing Data (2)

Information infrastructure

Health professionals responsible for TB control should have access to

Complete medical records

Database of essential TB-related activity and measurements

Slide 172: Collecting and Organizing Data (3)

Information infrastructure

Retrievable aggregate record system is essential

For tracking all inmates

For assessing the status of persons who have TB disease and LTBI

Electronic medical databases can provide additional benefits

Slide 173: Analyzing Data and Drawing Conclusions

In a multifacility correctional system, compile data for each facility separately and in aggregate

Analyze data against standards which can be defined externally or internally as established by the program collaborators

Use data to develop recommendations for program improvement

Share evaluation and recommendations with program staff, administrators, and partners, including the local health departments

Slide 174: Using Information to Improve the TB Program

Program staff should use data to identify and remove barriers to improving performance

Administrators should make necessary revisions to policies and procedures

Existing data can be used to clearly demonstrate the effects of implemented interventions

Slide 175: (Title Slide) Collaboration and Responsibilities
[IMAGE: Inmate's hands resting on cell bars.]

Slide 176: Liaisons for TB-Associated Efforts

Correctional facilities and health departments should each designate liaisons

Liaisons should be either responsible for, or familiar with, TB control

Liaisons should hold regular meetings with correctional facility and health department staff to discuss TB-control efforts

[IMAGE: Three people discussing TB-control efforts.]

Slide 177: Roles and Responsibilities That Require Collaboration Between Correctional Facilities and Health Departments (1)

Screening and treatment of inmates for LTBI and TB disease

Reporting of TB disease

Follow-up of inmates with symptoms or abnormal chest radiographs

Medical consultation regarding persons with confirmed and suspected TB disease

Slide 178: Roles and Responsibilities That Require Collaboration Between Correctional Facilities and Health Departments (2)

Contact investigations for reported TB cases

Continuity of treatment and discharge planning for persons with TB disease and LTBI

Training and education of correctional facility staff

Evaluation of screening and case management

Facility risk assessment

Slide 179: (Title Slide) References and Additional Resources
[IMAGE: Inmate's hands resting on cell bars.]

Slide 180: References
MMWR Article Volume 55, No. RR-09 1-44 July 7, 2006. Prevention and Control of Tuberculosis in Correctional and Detention Facilities: Recommendations from CDC(http://wwwdev.cdc.gov/mmwr/preview/mmwrhtml/rr5509a1.htm?s_cid=rr509a1_e)

Slide 181: Additional Resources
For additional information on TB, visit the CDC Division of Tuberculosis Elimination Website(http://wwwdev.cdc.gov/tb)