

SUBJECT: IDENTIFICATION AND MANAGEMENT OF LATENT TUBERCULOSIS
INFECTION (LTBI) AND TUBERCULOSIS DISEASE

EFFECTIVE DATE: 12/20/2019

I. PURPOSE:

The purpose of this health services bulletin (HSB) is to provide institutional health services personnel with information and guidelines for symptom screening, testing, diagnosis and treatment of latent tuberculosis infection and tuberculosis disease (TB) in inmates at all facilities and to provide continuity of care when an inmate reaches end-of sentence.

These standards and responsibilities apply to both Department staff and Comprehensive Health Care Contractor (CHCC) staff.

II. SCREENING FOR LATENT TUBERCULOSIS INFECTION AND FOR ACTIVE TUBERCULOSIS DISEASE:

- A. Reception Center Symptom Screening:
1. Complete the symptom screening form DC4-520C, “*Tuberculosis Symptoms Questionnaire For Inmates,*” on all inmates at reception prior to administering a tuberculin skin test (TST).
 2. Complete another DC4-520C at 7 - 21 days prior to administering a TST to those inmates who require a 2-Step TST.
- B. Annual Symptom Screening:
1. Complete the symptom screening form DC4-520C on all inmates annually from the date of their last symptom screening.
- C. Determining who **does not** receive a TST:
1. History of positive TST with documented mm of induration.
 2. History of documented TB Disease.
 3. History of blister at the TST site that required special attention.
- D. Inmates who have tuberculosis symptoms will be placed in airborne infection isolation room (AIIR) to minimize exposure to others of potential disease. (See V. Clinical Management of Suspected or Active Tuberculosis Disease).
- E. Reception Center and Annual Tuberculin Skin Testing (TST):
1. Unless an inmate has a documented positive TST result in millimeters (mm) or has other documentation of having a severe reaction to the TST, or history of TB Disease, all inmates must receive baseline testing using the 2-Step tuberculin skin testing

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process or a single Interferon Gamma Release Assays (IGRAs) blood test at **Reception Center**. There are two types of IGRA blood test: Quanterferon Gold (QFG) and T-Spot.

2. If inmate **has had** a negative TST placed within the last **12 (twelve) months**:
 - a. For those inmates who have had a TST within the last 12 (twelve) months per their medical record, a 2nd (“2-step”) TST placement is **not needed**.
 - b. Following the reading of the initial reception center TST, the inmate may be scheduled for their annual TST (or TST screening questionnaire if TST was positive) in one year.
3. If inmate **hasn’t had** a TST placed within the last **12 (twelve) months**:
 - a. For those inmates whose last negative TST was greater than 12 (twelve) months ago (per their medical record), a 2nd (“2-step”) TST placement is **required**.
 - b. For those inmates who require a 2-step TST, the 2nd TST **must** be placed 7 – 21 days post 1st TST placement date. (**NOTE:** a 2-step TST **MUST** be done during this time period per the CDC. *After 21 days, there’s no purpose in placing a second TST*).
 - c. Following the reading of the 2nd TST, the inmate may be scheduled for their annual TST (or TST screening questionnaire if the TST was positive) in one year.
4. Interferon Gamma Release Assay (IGRA) – Blood test for TB Infection:
 - a. A single IGRA test replaces the 2-Step process.
 - b. Following the reading of an IGRA test, the inmate may be scheduled for their annual IGRA (or TB screening questionnaire if IGRA was positive) in one year.
5. All inmates who have a documented positive TST results in millimeters (mm), must be evaluated and screened annually.
6. All inmates are to be scheduled annually for a TB screening and/or TST unless they meet the criteria stated in section II. A(2) at their institution. (**NOTE:** *Annual TB Testing should be conducted using the same type of test the inmate received at reception*).
7. Chest x-rays (CXR) are indicated for inmates who have tuberculosis symptoms or a documented positive TST conversion within the last two years and have either not

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received or not completed treatment. Persons who have a positive TST result and no symptoms suggestive of TB disease should be evaluated with a chest x-ray within 72 hours after the skin test is interpreted.

- F. TB Screening of Inmates Infected with HIV or at Risk of HIV Infection.
All inmates with HIV infection or at risk for HIV infection should receive:
1. Tuberculin skin test, if inmate has no history of a positive TST.
 2. Chest x-ray as clinically indicated.
 3. Acid-fast bacilli (AFB) sputum smear and culture at initial screening, if the inmate has any pulmonary symptom or if a clinician orders.
- G. Screening Following Exposure to an Infectious TB Case:
1. Inmates whose tuberculin skin tests (TST) were negative at the most recent testing should be symptom screened by completing DC4-520C questions 1-12 and retested following indoor exposure to a person who is an infectious TB suspect or case.
 2. If the tuberculin skin test performed is negative, another skin test should be done eight (8) to ten (10) weeks later.
- H. Based on Positivity Rate:
An institution that has a positivity rate of >6% in a three (3) month period will be evaluated for need of testing of inmates with a previous negative skin test. The findings will be discussed with the central office clinical contract monitor-public health or designee and the decision to do mass testing will be approved by the Director of Medical Services.
- I. Documentation/Forms/Reporting:
1. Documentation of tuberculosis skin test information shall be recorded on DC4-710A "*Immunization Record*," found on the left side of the health record. Institutional location, dates of test, Department of Health Case/Suspect reporting, treatment follow-up, and applicable comments shall be included in the documentation.
 2. TB suspects and cases shall be reported as outlined in Section 392.53, Florida Statutes and Chapter 64D-3, Florida Administrative Code, to the Department of Health, Bureau of Communicable Diseases, TB Control Section.
 3. The Department of Health TB Case and Suspect Reporting Requirements Form, shall be completed by the institutional Infection Control Nurse or designee, and a copy sent to the Regional Infection Control Coordinator or designee, who will review and forward copies to the Department of Health, Bureau of Communicable Diseases, TB Control Section and central office, clinical contract monitor – public

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health or designee. The institutional Infection Control Nurse or designee will file the original document in the inmate's medical record, behind the DC4-710A divider tab in chronological order.

III. TREATMENT OF LATENT TUBERCULOSIS INFECTION (LTBI):

A. Purpose:

Primary: To control and eliminate TB disease in the Department of Corrections because it substantially reduces the risk that infection with *M. tuberculosis* will progress to TB disease.

B. Indications:

1. Treatment of latent tuberculosis infection shall be considered for all inmates who have a positive skin test when active disease has been ruled out and there are no contraindications to treatment.
2. Regardless of age when one or more of the following risk factors are present:
 - a. The tuberculin skin test reaction is considered positive for persons who have one (1) or more of the following:
 - (1) Skin Test > 5 mm (Reported as At Risk)
 - (a) Known or suspected HIV infection.
 - (b) Recent close contact with an infectious TB disease case.
 - (c) Inmates with organ transplants and other immune compromising conditions who receive the equivalent of 15mg/day of prednisone for > 1 month.
 - (d) Persons with fibrotic changes on chest radiograph consistent with previous TB disease
 - (2) Skin Test > 10 mm (Reported as Positive)
 - (a) Conversion of the tuberculin skin test reaction from negative to positive within a two (2) year period (>5 mm increase in reaction size in HIV positive or >10 mm increase in others).
 - (b) Medical conditions that increase the risk of progression to clinically active tuberculosis disease including:
 - i. Diabetes
 - ii. Silicosis

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- iii. Prolonged corticosteroid therapy or immunosuppressive therapy thirty (30) days or more
- iv. Hematologic or reticuloendothelial diseases
- v. End-stage renal disease
- vi. Intestinal by-pass
- vii. Post gastrectomy
- viii. Chronic malabsorption syndrome
- ix. Carcinoma of the oropharynx or upper gastrointestinal tract
- x. 10% or more below ideal body weight
- xi. HIV infection
- xii. Recent immigration
- xiii. History of TB
- xiv. Injecting drug user
- xv. Receiving radiation or chemotherapy treatment

C. Contraindications to Monotherapy with Isoniazid (INH) Treatment for LTBI:

- 1. Suspected or confirmed clinically active tuberculosis disease.
- 2. History of INH associated hepatitis.
- 3. History of severe adverse effect of INH such as severe rash or arthralgias.
- 4. Current active liver disease.
- 5. Known exposure to a TB disease case from whose tubercle bacilli are 100% resistant to INH.

D. Special Precautions In the Use of Isoniazid (INH):

- 1. Age greater than thirty-five (35) years.
- 2. Concurrent use of other medications on a long-term basis.
- 3. History of alcohol abuse.
- 4. Chronic liver disease.
- 5. Peripheral neuropathy.
- 6. Previous discontinuation of INH due to side effects.
- 7. Pregnancy: Treatment for LTBI with INH should be deferred until after pregnancy except in the pregnant woman infected with both M.tb and HIV, **or** recently infected (HIV) in which case INH should be considered after the first trimester.
- 8. Immunosuppressed Inmates: Close monitoring and awareness of possible drug interactions.

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E. Pretreatment Evaluation for Treatment for LTBI:

1. Medical examination
2. Height and weight
3. Chest radiography within last sixty (60) days
4. Liver function test (Alanine aminotransferase (ALT) and Aspartate aminotransferase (AST), and Bilirubin)
5. HIV testing offered if no current result is available
6. Sputum collection for bacteriologic studies if clinically indicated.

F. **DO NOT INITIATE TREATMENT FOR LATENT TB INFECTION WITH INH
When One or More of the Following is Evident:**

1. Contraindications (see section III C)
2. Baseline laboratory values (liver enzymes) are significantly elevated, and/or if there are symptoms or signs suggestive of current active liver disease. The physician must determine if proceeding with INH is justified after considering risks versus benefits.
3. Pregnancy—exceptions: HIV infection is an indication for treatment for Latent TB infection with INH (see precaution, section III D 7).
4. A diagnosis of active TB disease.

G. Medication and Dosage:

1. **Isoniazid (INH):** Should be given twice weekly under directly observed therapy¹(DOT) for nine (9) months by a designated health care worker, according to the following dosage schedule, as prescribed by the physician or clinical associate, including inmates who are HIV infected and/or have stable chest x-ray abnormalities consistent with prior healed tuberculosis pulmonary disease. (See also section III.G.4.c):
A total of 78 twice weekly doses should be given in (9) nine months

¹ Directly observed therapy (DOT) is observing the medication on the inmate's tongue, observation of swallowing, and inspection of the oral and buccal cavities, and sublingual area after swallowing. Medication given by DOT should be documented as such in the clinical record.

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2. Inmate Weight Dosage of INH:

<u>Weight</u>	<u>Dosage</u>
>120 lb.	900 mg. (3 tablets)
90 to 120 lb.	750 mg. (2 1/2 tablets)
<90 lb.	600 mg. (2 tablets)

3. Rifampin: If unable to tolerate INH, change to Rifampin (RIF) and give daily for four (4) months. Delay beginning RIF until the ALT and AST have returned to normal or baseline. If unable to tolerate, document the intolerance and monitor annually. If an inmate is HIV positive and on Highly Active Antiretroviral Therapy (HAART) then Rifabutin is used and given daily, consult a TB expert for recommendations.

a. Use when the inmate has exposure to a person with infectious tuberculosis disease caused by tubercle bacilli that are 100% resistant to INH or in a person who is at high risk of progression to tuberculosis and who is intolerant to INH. Each dose should be given daily under direct observation therapy (DOT) by a designated health care worker according to the following dosage schedule as prescribed by the physician or clinical associate:

b. Inmate Weight Dosage of Rifampin

<u>Weight</u>	<u>Dosage</u>
>90 lb	600 mg
<90 lb	450 mg

A total of 120 doses should be given in (4) months

4. Other Drugs and Regimens:

a. Inmates exposed to persons who have tuberculosis caused by or likely to be caused by tubercle bacilli resistant to both Isoniazid and Rifampin may be considered for treatment for LTBI. Expert consultation should be obtained - by calling the *Florida Tuberculosis Hotline* at **1-800-482-4636**. It is operational twenty-four (24) hours a day.

b. Daily DOT of INH may be used as an alternative to the twice weekly schedule (paragraph G.1. above) if preferred by the attending physician.

c. Inmates with fibrotic infiltrates thought to represent old, healed TB and those with silicosis should receive four (4) months of Isoniazid plus

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- Rifampin (or Rifamate) as an alternative to nine (9) months of Isoniazid (see section III. G. 1).
5. Pyridoxine (B6): B6 50mg. orally with each twice weekly dose of INH is recommended to reduce the risk of peripheral neuritis. There is increased risk for peripheral neuritis for alcoholics and diabetics.
 6. For refusal of TB testing or related care/medication refer to Procedure 401.018, "*Refusal of Tuberculosis Testing and Tuberculosis Related Care*".
- H. Monitoring of Inmates on Treatment for LTBI and Active TB Disease:
1. Monthly monitoring by the nurse is to be initiated within two (2) weeks after the inmate has been started on INH or TB medications and is to be performed for all inmates placed on treatment for LTBI or active TB disease for:
 - a. Compliance with therapy (review MARS and medical record).
 - b. General health.
 - c. Adverse effects² to medication (refer to the physician or clinical associate if adverse effects develop).
 - d. Advising inmate to promptly report possible adverse effects.
 - e. Review ALT /AST, bilirubin; if infected with HIV or pregnant women, or women in the immediate postpartum period (typically within three (3) months of delivery), or a history of liver disease.
 - f. Increased LFT enzyme concentrations can be accepted up to five (5) times the upper limit of normal for inmates who are free of hepatitis symptoms, if the serum bilirubin concentrations are in the normal range. Refer to physician if either lab value is three (3) (if symptomatic) to five (5) times (if asymptomatic).
 - g. Signs or symptoms of active tuberculosis
 - h. Providing education and follow-up information for care following transfer to a community correctional center or release.
 - i. For documentation purposes, inmates on LTBI treatment will be labeled as TCL in (OBIS) Offender Base Information System on the GH07 screen and Active TB treatment will be labeled as TCA.

² Anorexia, nausea, vomiting, abdominal pain, dark urine, abdominal tenderness, fever, jaundice, scleral icterus, paresthesias, or other symptoms or signs.

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2. More frequent monitoring may be needed if indicated by clinical or laboratory findings such as increasing liver enzymes and ordered by the physician or clinical associate.
 3. If INH is discontinued due to elevated liver enzymes, liver enzyme tests will be repeated at weekly or more frequent intervals, as ordered by the physician or clinical associate, until return to normal or baseline, continue to follow in INH therapy clinic.
 4. Documentation is to be recorded on DC4-719, "*Tuberculosis/INH Treatment for Latent TB Infection (LTBI) Nursing Evaluation*".
- I. Continuation/Interruption/Rechallenge/Discontinuation/Extension of INH:
1. Continuation: Since 10-20% of inmates receiving INH develop mild abnormalities of liver enzymes, INH may be continued in the presence of elevation of liver enzymes in the range of up to three (3) times normal limits if there are no other major reasons for stopping INH. This decision must be made by a physician.
 2. Interrupt the use of INH and refer to the physician or clinical associate if ALT and AST is > 3 times upper limits of normal range and/or the inmate has any signs or symptoms of adverse effects such as mild hypersensitivity reaction, gastrointestinal complaints, neurological symptoms, or signs or symptoms of active TB disease.
 3. Re-challenge: The physician may give consideration to cautiously restarting INH treatment for latent TB infection after interruption. If re-challenge is attempted, more frequent monitoring is indicated. At a minimum, the following factors should be considered in a decision whether to re-challenge:
 - a. The promptness of return to normal of the clinical and laboratory abnormalities
 - b. The likelihood of control of hypersensitivity reaction or neurological symptoms with the use of antihistamines or pyridoxine (B6)
 - c. The willingness of the inmate to re-challenge
 - d. The risk of progression to active tuberculosis if treatment of latent TB infection is not completed
 4. Discontinue INH without re-challenge if ALT and AST is >5 times the upper limits of the normal range, or bilirubin is greater than 3 mg/dl, and/or inmate has jaundice or other clinical evidence of INH associated hepatitis, and/or severe hypersensitivity, e.g., severe rash or arthralgias.

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5. Extension for High Risk Inmates: If doses of the treatment of latent TB infection therapy are missed, adjust the ending date to provide for the missed doses. Treatment should be extended beyond the prescribed nine (9) month chronological period until the total recommended number of doses of medication is completed. A total of 78 doses should be given in (9) months. It is not necessary to restart the nine (9) month plan unless a break in treatment is more than two (2) months. If a break of more than two (2) months occurs, repeat the CXR, ALT and AST; if all are within normal limits, restart the INH for nine (9) months of treatment.

- J. Record Documentation: DC4-710A, "*Immunization Record*," should be updated for inmates on treatment for latent tuberculosis infection to show dates of treatment, date of reporting to Department of Health, date of TST test and reaction in mm, institution, chest x-ray result and date, as well as reason for stopping treatment.

- K. Inmates in Work Release Programs on INH
 1. Inmates with LTBI on INH may qualify for work release program if they have been taking INH by DOT for six months **and** if they don't have one or more of the following conditions:
 - a. HIV infection
 - b. Diabetes
 - c. Cancer
 - d. Epilepsy
 - e. Chronic steroid use
 - f. Be part of a contact investigation

 2. Those inmates that qualify for KOP (Keep on Person) INH will be required to document their medication compliance by completing their *Inmate KOP INH Medication Form*, DC4-719B. When initially given this form, the inmate is to sign at the bottom of the page that s/he agrees to take his/her medication as prescribed and to keep the medication record up to date.

 3. Work release inmates on INH will be required to have a monthly TB clinic visit at their assigned correctional institution's medical department. The inmate must bring their KOP medication card and their *Inmate KOP INH Medication Form* with them to their appointment. The form will be reviewed for compliance, signed by the nurse, and then filed in the MAR section of inmate's medical record.

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4. The inmate's LFTs must remain below 3 times the upper limits of normal in order to remain in the work release program.
5. Failure to show medication compliance will result in the inmate being removed from the work release program and returned to the institution.

L. Inmates on INH and Assigned to a Work Camp

1. Inmates with LTBI on INH may be assigned to a Work Camp if they have been taking INH by DOT for six months and if they don't have one or more of the following conditions:
 - a. HIV- infection
 - b. Diabetes
 - c. Cancer
 - d. Epilepsy
 - e. Chronic steroid use
 - f. Be part of a contact investigation
2. The Work Camp inmate receiving INH will have the WC box checked on their DC4-706 *Health Services Profile* and the Single Dose box will be marked "Yes".
3. Work Camp inmates will be given their INH medication by a nurse on Tuesday and Friday every week.
4. Work Camp inmates on INH will be required to have a monthly TB clinic visit at their assigned correctional institution's medical department.
5. The inmate's LFTs must remain below 3 times the upper limits of normal in order to remain at the Work Camp.
6. Failure to show medication compliance will result in the inmate being removed from the Work Camp and returned to the institution.

IV. CLINICAL MANAGEMENT OF SUSPECTED OR ACTIVE DISEASE TUBERCULOSIS:

The intent of these guidelines is to provide a framework upon which an individual plan of care can be applied by the clinician in directing the management of each inmate who has or is suspected of having active tuberculosis disease. These guidelines do not provide rationale for recommendations given.

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NOTE: Inmates suspected of having infectious tuberculosis disease should be isolated in an airborne infection isolation room (AIIR) until known to be non-infectious. A surgical mask should be worn by the inmate anytime the inmate has to leave the negative AIIR. A designated respiratory protective device (N-95 & UVEX HEPA mask) should be worn by staff (see section VI. Transmission Control) prior to entering the AIIR.

A. Diagnosis:

1. Suspect pulmonary tuberculosis disease in persons with a recent history of cough, often productive, for > 3 weeks, night sweats, fever, anorexia, weight loss, malaise, easy fatigability and hemoptysis. (Nurses and providers need to be alert for these complaints). Presenting symptoms vary and may not include all of the above. A past history of prior tuberculosis, especially if not adequately treated, or history of exposure to tuberculosis, or of prior positive tuberculin skin test or abnormal chest x-ray findings may add credence to a suspected diagnosis of TB disease.
2. Persons suspected of having pulmonary tuberculosis disease on the basis of history should receive a physical examination, Mantoux tuberculin skin testing (if not already known to be positive), chest x-ray, and at least three (3) sputum specimens collected on different days for microscopy for acid-fast bacilli (AFB) and mycobacterium culture with susceptibility studies. A *Mycobacterium tuberculosis* direct test (MTD) should be requested on initial studies.
3. Diagnosis of tuberculosis disease is confirmed by isolation of *Mycobacterium tuberculosis* on culture. Without culture confirmation, a person can be counted as a case of tuberculosis disease if s/he has a positive tuberculin skin test reaction and has clinical and chest x-ray features suggestive of tuberculosis disease which improve as a result of anti-tuberculosis chemotherapy. Also an inmate can be called a “provider diagnosis case” with a negative TST and clinical and CXR features that improve with treatment. While awaiting culture results, follow-up chest x-ray, and clinical evaluation, the inmate should be classified as a tuberculosis disease suspect if there are clinical symptoms and signs of TB, a positive tuberculin skin test, abnormal chest x-ray, and sputum microscopic examination revealed AFB or some reasonable combination of the above.
4. The infection control nurse at the institution is to notify the regional infection control coordinator or designee immediately of persons having confirmed or suspected tuberculosis. S/he will then notify the central office clinical contract monitor – public health or designee, and the Department of Health, Bureau of

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Communicable Diseases, TB Control Section immediately following notice. If the inmate or staff person suspected or confirmed to have infectious TB has been transferred or released, the chief health officer/ institutional medical director of the receiving institution or Department of Health, TB program manager/coordinator for the county health department where the inmate was released or staff person resides must be immediately notified by telephone by the institutional infection control nurse or designee.

B. Treatment:

1. In most cases, treatment with multidrug anti-tuberculosis medication should be started as soon as the diagnosis is reasonably suspected rather than waiting for culture confirmation.
2. The preferred drug regimen for pulmonary or extrapulmonary tuberculosis is four (4) drugs (Isoniazid, Rifampin, Pyrazinamide, and Ethambutol) as recommended by the CDC (<http://www.cdc.gov/tb/topic/treatment/tbdisease.htm>). Direct observation of each dose is standard procedure. Daily dosing is preferred. If an inmate is HIV positive and on HAART then Rifabutin is used instead of Rifampin, consult a TB expert for recommendations.
3. Suspect initial drug resistance if the inmate's history reveals prior treatment for TB disease, non-compliance with treatment, exposure to a drug resistant case, or if the person originates from Asia, Africa, Latin America, or another area known to more commonly have drug resistance, e.g., New York City, Dade County, or along the U.S./Mexican border.
4. Extrapulmonary TB disease generally requires the same regimen as pulmonary TB disease. Treatment for a longer time period is sometimes required because monitoring specimens bacteriologically is often not readily feasible as in pulmonary TB disease.
5. Treatment of TB disease should not be delayed in a pregnant inmate. Avoid PZA, streptomycin, and other injectables See <http://www.cdc.gov/tb/topic/treatment/tbdisease.htm>.
6. Consultation with a physician expert in the management of TB disease is recommended if the case is complicated, especially when multiple drug resistance is suspected or confirmed. *The tuberculosis hotline in Florida is 1-800-482-4636. It is operational twenty-four (24) hours a day.*

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7. All medication should be given as a single dose rather than divided during the day, preferably on an empty stomach. Do not administer with liquid supplements such as Ensure or Glucerna.
- C. Monitoring for Response to Therapy:
1. For pulmonary TB disease cases or suspects, submit sputum for AFB smear and culture weekly or more frequently during the initial four (4) to six (6) weeks of therapy or longer if indicated. The results will be a guide to transmissibility as well as response to therapy. - Sputum specimens should be collected during each monthly TB clinic visit until drug treatment has been completed. Mail all sputum specimens to Bureau of Public Health Laboratories-Jacksonville, P.O. Box 210, Jacksonville, Florida 32231.
 2. Repeat chest x-ray at four (4) to eight (8) weeks after TB chemotherapy is begun unless clinically indicated sooner. Additional interval chest x-rays may be helpful in demonstrating improvement, worsening, or stability, but may not be needed. A chest x-ray about the time of completion of chemotherapy is recommended. A post-treatment chest x-ray and sputum for AFB smear, culture, and susceptibility should be performed at two (2) months after completion of treatment. If the inmate is unable to produce sputum, the documentation should include a statement to that effect.
 3. The inmate should be seen by the clinician at monthly intervals during treatment. These inmates are to be included in the Tuberculosis Clinic for the monthly monitoring.
 4. Expected response to therapy includes clinical, bacteriologic, and chest x-ray improvement. Failure of one (1) or more of these parameters may be evidence of a failing drug regimen usually as a result of inmate non-compliance in taking medication or because of initial or acquired drug resistant organisms. Failure to absorb medication or failure to prescribe an adequate drug regimen initially is less common causes.
 5. If a failing drug regimen is evident or suspected, request susceptibility studies on new and prior specimens. Expert TB medical consultation is recommended. If medical consultation is not promptly forthcoming, add two drugs not previously used pending the review of new susceptibility studies, and supervise each dose of medication. Never add one (1) drug at a time to a failing regimen. If noncompliance is the problem and there is no drug resistance, there may be no need for additional new medication.
 6. A TB expert is to be consulted for all multidrug resistant cases. The consultation report and recommendations are to be clearly documented and followed.

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7. Consult a TB expert for recommendations regarding monitoring and follow-up of cases with HIV/TB co-infection.
- D. Monitoring for Adverse Effects of Drugs:
1. Baseline pretreatment measurements of ALT, AST, CBC, bilirubin, and platelet count are appropriate. If Ethambutol is used, measure visual acuity.
 2. Pretreatment audiometry, creatinine, and BUN should be done on inmates taking streptomycin.
 3. Inmates receiving INH, Rifampin and/or pyrazinamide should be instructed to report symptoms suggesting hepatitis including: loss of appetite, nausea, vomiting, persistent dark urine, yellowish skin, malaise, unexplained fever of three (3) or more days, abdominal pain or tenderness.
 4. Inmates on TB medications should be seen by a nurse, physician, or clinical associate within two (2) weeks of starting medication and at least monthly while on medications. Monitoring should occur monthly or at more frequent intervals if recommended by the attending physician. Inmates should be questioned for symptoms commonly associated with the regimen used which will usually include those symptoms in paragraph "2" above, in addition to other symptoms. Document encounters on the DC4-719 for each visit. Inmates receiving potentially hepatotoxic drugs shall have ALT/AST and bilirubin measured monthly or at more frequent intervals if recommended by the attending physician.
 5. Mild elevation of ALT and AST occurs frequently. In the absence of symptoms and/or signs of liver toxicity, mild elevations of ALT and AST are usually not a reason to discontinue TB medications. Symptoms suggesting hepatotoxicity and/or elevations of ALT and AST greater than three (3) to (5) five times the normal ALT and AST range are a basis for giving serious consideration to discontinuing or temporarily interrupting the drug(s) suspected of causing the abnormalities. If treatment for TB is stopped or held, inmate has to be placed in AIIR until treatment is resumed or they are no longer infectious.
 6. After liver enzymes have returned to normal, collaborate with the Florida TB hotline to identify the drug(s) responsible for the adverse effect and/or may demonstrate which drugs may be safely continued.
 7. Hyperuricemia may occur in inmates receiving Pyrazinamide. In the absence of symptoms of gout, hyperuricemia is not usually an indication for discontinuing the drug.
 8. Interaction of Isoniazid and Phenytoin increases serum concentration of both drugs. The physician prescribing Phenytoin should be aware that the inmate is

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taking INH in the event s/he wants to monitor the serum level for consideration of dosage adjustment of the Phenytoin.

9. Because symptoms of peripheral neuropathy may be associated with INH use, inmates should be monitored for symptoms. Consideration should be given to the use of Pyridoxine (B6) as preventive (25 to 50 mg/day) in inmates with conditions (diabetes, uremia, alcoholism, malnutrition, etc.) in which neuropathy is common.
10. By accelerating Estrogen metabolism in the liver, Rifampin may interfere with effectiveness of oral contraceptives in addition to a number of other drugs (methadone, glucocorticoids, anticonvulsants, cyclosporin, oral hypoglycemic agents, coumadin derivatives, digitalis, ketoconazole, and other estrogens).

V. TRANSMISSION CONTROL:

A. Isolation:

1. Prompt initiation of appropriate anti-tuberculosis chemotherapy is the most effective modality. The inmate with suspected or confirmed infectious tuberculosis should be isolated in an airborne infection isolation room (AIIR), a room with negative air pressure relative to surrounding indoor areas (see Environmental Health and Safety Manual, Chapter 12, "*Tuberculosis Exposure Control*"). The room should have a minimum of six (6) air changes per hour and the room air should be exhausted directly to outdoor air. Isolation should be continued until transmission risk has declined as evidenced by:
 - a. Three (3) consecutive sputum smears being negative for acid-fast bacilli (AFB).
 - b. An appropriate anti-tuberculosis chemotherapy regimen (four [4] drug therapy), and
 - c. Clinical improvement has been demonstrated (symptoms are no longer present).
2. Inmates with tuberculosis caused by organisms resistant to both INH and Rifampin should be isolated until three (3) consecutive sputum specimens no longer isolate *Mycobacterium tuberculosis* on culture.

B. Particulate Respirators/Masks:

1. NIOSH approved personal respirators shall be worn by health care providers and others who share enclosed air space with an inmate who has or is suspected of having infectious tuberculosis disease.

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2. Fit testing of personal respirators (PR) shall be performed in accordance with manufacturer's recommendation. Health care workers should be educated in the proper fit and use of PRs.
3. A surgical mask should be worn by the infectious or potentially infectious inmate when being transported within the institution or between medical facilities or institutions. If available, a van equipped with a HEPA filter should be used to transport inmates between medical facilities or institutions.

VI. CONTACT INVESTIGATIONS:

- A. The following guideline outlines the process in addressing investigation of TB exposure, transmission and prevention of future cases of TB through contact investigation in inmates and employees.
- B. Decisions to initiate a contact investigation:
 1. Pulmonary/laryngeal/pleural AFB Sputum Smear Positive, NAA (MTD) Positive— **Contact Investigation is indicated.**
 2. Pulmonary Suspect test pending, AFB Sputum Smear Negative or not done, chest x-ray results indicate Cavitory Disease—**Contact Investigation is indicated.**
- C. Methods for investigating the index case:
 1. The regional infection control coordinator will call and coordinate with the Department of Health, Bureau of Communicable Diseases, TB Control Section, and central office clinical contract monitor – public health or designee to initiate contact investigation.
 2. The central office clinical contract monitor-public health or designee will obtain a dorm run where the index case was housed, from central office, Research and Support Services.
 3. The central office clinical contract monitor-public health or designee will provide the regional infection control coordinator with a copy of the dorm run, and the regional infection control coordinator is responsible for creating the inmate database on the DC4-772, "*Inmate Contact Database Form*" for all inmate contacts involved in the contact investigation.
 4. The regional infection control coordinator will provide the institutional infection control nurse with a copy of the created database (DC4-772), "*Inmate Contact Database Form*" and the institutional infection control nurse is responsible for scheduling and completion of the DC4-772, "*Inmate Contact Database Form*".

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5. The institutional infection control nurse, will obtain the employee work schedule roster from the institution's environmental health and safety officer (EHSO), and determine who has come in close contact with the index case.
 6. The institutional infection control nurse is responsible for creating the DC4-776, "*Employee Contact Database Form*" for all employee contacts involved in the contact investigation.
 7. Pre-interview analysis of the index case medical record to review site of disease, type and date of onset of symptoms, chest x-ray results, specific TB medication and their start dates, pertinent lab results (e.g., MTD/ smear/ culture), other medical conditions.
 8. Initial interview of index case should be conducted within three (3) working days of determination of risk for all TB cases/suspects identified at high risk for TB transmission.
 9. The inmate should be informed that all information obtained will be kept confidential. Review all previous information with the inmate to ensure that this information is correct and ensure that the necessary information has been obtained to complete the required Department of Health forms, TB Case and Suspect Reporting Requirements form, (DH 1173) TB Medical Report and Treatment form, (DH 2123) Evaluation Sheet for Contact Investigation in Corrections form, (Center for Disease Control forms) CDC 72.9B Follow-Up 1 Report form, CDC 729C Follow-Up 2 Report form, and Department of Corrections DC4-772, Inmate Contact Database form, and DC4-776, Employee Contact Database form.
- D. Defining the infectious window period, **the break-in –exposure (BIE)** by the Index Case Characteristics:
1. TB Symptoms present, AFB Sputum Smear negative, normal CXR— **three (3) months before symptom onset or first positive finding** (e.g., abnormal CXR) consistent with TB disease, whichever is longer.
 2. TB Symptoms present, AFB Sputum Smear Positive, cavitory findings on CXR— **three (3) months before symptom onset or first positive finding** consistent with TB disease, whichever is longer.
 3. No TB Symptoms, AFB Sputum Smear negative, normal CXR— **four (4) weeks before date of suspected diagnosis.**
 4. No TB Symptoms, AFB Sputum Smear Positive, cavitory findings on CXR— **three (3) months before first positive finding consistent with TB.**

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E. Priority assignments for contacts:

1. Exposed to Pulmonary/laryngeal/Pleural TB with cavitory lesion on CXR or is AFB sputum smear positive are:
 - a. High priority: Close contact, contact with medical risk factor, contact with over eight (8) hours of exposure, has symptoms of TB.
 - b. Medium priority: Contact with less than eight (8) hours of exposure.
 - c. Low priority: contact with less than four (4) hours of exposure.
2. Exposed to AFB sputum smear negative TB Cases are:
 - a. High priority: Close contact with eight (8) hours of exposure, contact with medical risk factor, or symptoms of TB.
 - b. Medium priority: Contact with less than eight (8) hours exposure.
 - c. Low priority: Contact with less than four (4) hours exposure.

F. Initiate Contact Follow-up activities:

1. Assign the identified contacts for a screening questionnaire and TST based on case information.
2. Time frames for initial follow-up of contacts exposed to tuberculosis.
 - a. High priority contact: index case AFB Sputum Smear positive or cavitory disease on chest x-ray:
 - (1) Seven (7) days from listing a contact to the initial encounter; and
 - (2) Five (5) days from the initial encounter to the completion of medical evaluation.
 - b. High-priority contact: index case AFB Sputum Smear negative:
 - (1) Seven (7) days from listing a contact to the initial encounter; and
 - (2) Ten (10) days from the initial encounter to completion of medical evaluation.
 - c. Medium priority contact: regardless of AFB Sputum Smear or culture result:
 - (1) Fourteen (14) days from listing a contact to the initial encounter; and
 - (2) Ten (10) days from the initial encounter to completion of medical evaluation.

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3. A conference at the institution or by conference call will be made with the following staff present:
 - a. The central office clinical contract monitor-public health and/or designee.
 - b. The chief health officer/ institutional medical director, clinician, APRN,
 - c. The warden, assistant warden of programs, environmental health and safety officer, (EHSO).
 - d. The nurse supervisor / director of nursing, and the institution's infection control nurse,
 - e. The health services administrator, or nurse manager (where applicable and approved by the department), medical records supervisor.
4. Tasks will be assigned by the regional infection control coordinator, to trained and experienced healthcare workers and security staff. The medical unit personnel will provide the TST service and questionnaire completion. If an inmate or employee needs more immediate attention the health care worker will notify the clinician at the institution for direction, or the regional infection control coordinator.
5. Once the contact databases have been created, a written plan with dates, times, locations for screening/testing, and priority assignments should be provided to the central office clinical contract monitor – public health or designee.
6. The inmates and employees determined to be high priority should be educated prior to the actual screening and TST events. Each high and medium priority contact should be screened initially by completing the DC4-520C "*Tuberculosis Symptoms Questionnaire For Inmates,*" questions 1-11 or the DC4-782B "*Tuberculosis Symptoms Questionnaire For Employees*", within three (3) working days after being listed.
7. Administer a TST for all contacts who do not have a documented prior positive test result or prior TB disease at the time of the initial assessment. High-priority contacts should receive a test < 7 days after they are listed and medium-priority contact < 14 days.
8. Contacts that have a positive TST result > 5 mm or symptoms of TB should be medically examined, including a chest x-ray, to rule out TB disease.

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9. Repeat TST of high, medium and low priority contacts who had a previous negative result < 8 weeks after their most recent exposure. TST needs to be eight (8) to ten (10) weeks after the exposure.
10. All HIV positive contacts are high priority and need to be evaluated for LTBI by chest x-ray and a minimum of two (2) sputum specimens.

G. Contact Investigation Expansion:

The central office clinical contract monitor-public health or designee will consider a recommendation to expand the number of contacts of an investigation if the following criteria exist:

1. Unexpectedly large rate of infection or TB disease in high-priority contact.
2. Evidence of second-generation transmission.
3. TB disease in any contacts who had been assigned a low priority.
4. After reviewing the results from the investigation to date of the high and medium priority contacts.
5. The above examination should be carried out in each level of other-than-close contacts until no further skin test converters are found.
6. Contacts who, as a result of the contact examination, are tuberculin skin test negative should be retested three (3) months after last exposure to the TB suspect or case.
7. File the original copy of the Department of Health, TB Case and Suspect Reporting Requirements form, behind the DC4-710A, "Immunization Record", located on the left side of the medical record. Send a copy of the Department of Health, TB Case and Suspect Reporting Requirements form to the central office clinical contract monitor-public health and/or designee, and the Department of Health, Bureau of Communicable Diseases, TB Control Section.

VII. END OF SENTENCE SUMMARY AND REPORTING PROCESS:

A. Summary:

1. Nurse shall complete entire form DC4-758, "*Tuberculosis/INH Health Information Summary*" at time of the expiration of the sentence (EOS) health appraisal. If an item is not applicable, place N/A in the space provided.

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2. All information for test results pending and medication should be related to tuberculosis evaluation, treatment, or treatment for LTBI.
3. Verify Florida county health department addresses.
4. Provide as much information as possible in the inmate contact information section (names, address, and telephone numbers) which will help the Department of Health /County Health Department (DOH/CHD) track the inmate fails to follow up with the referral. If no other information is available, provide the name and telephone number for the probation and parole office. A post office box is not sufficient.
5. Check to see that the DC4-711B, "*Consent and Authorization For Use and Disclosure Inspection and Release of Confidential Information*" has been signed. If there is not a completed DC4-711B in the medical record, have the inmate sign one for the DOH/CHD. If the inmate refuses to sign the authorization, a note shall be made on the form that the inmate refused to sign the authorization. The inmate will be informed that Florida Statutes require that this information will be provided to the Department of Health. However, the information provided will not include any HIV related information without the inmate's consent.

B. Verbal Notification:

1. For continuity of care and treatment of LTBI, the institutional infection control nurse shall contact the TB nurse at the county health department where the inmate will reside. When possible, this call should be made when the end of sentence (EOS) health appraisal is performed.
2. For suspect/case treatment, the central office clinical contract monitor – public health and the Department of Health, Bureau of Communicable Diseases, TB Control Section, shall be notified via telephone as soon as information is available on pending release.
3. For TB suspects or cases, the regional infection control coordinator or designee shall notify the Department of Health, Bureau of Communicable Diseases, TB Control Section and the local County Health Department in which the inmate will reside. The verbal report shall include name, date of birth, race, sex, county, and contact information.

C. Written Notification:

1. Copies of the DC4-758 "*Tuberculosis/INH Health Information Summary,*" and DC4-719 "*Tuberculosis/INH Treatment for Latent TB Infection (LTBI) and Nursing*

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Evaluation” are to be mailed to the assigned county health department and to the central office clinical contract monitor-public health or designee within seventy-two (72) hours of the inmate's release and the original filed in the inmates medical record.

2. Make two (2) copies.
 - a. Place original in the inmate's medical record behind the Communicable Disease/Treatment record (on the left side).
 - b. Give a copy to the inmate to assist in continuing care in the community. Verbal instructions shall be provided to the inmate to contact the county health department TB nurse upon arrival in the home county to discuss follow-up treatment. The inmate should be instructed to show this copy to the physician or nurse in the county health department or private physician at the first follow-up appointment.
 - c. Send a copy of the DC4-758 and the DC4-719 to the county health department and the central office clinical contract monitor-public health at: 501 South Calhoun Street, Tallahassee, Florida 32399.

The regional infection control coordinator or designee will ensure that the completion and relay of information on the releasing inmate is entered into OBIS by the facility staff. The regional infection control coordinator or designee will provide a verbal report for any inmate under treatment as a TB suspect or a current TB case to the Department of Health, Bureau of Communicable Diseases, TB Control Section. Copies for all inmates who are released to Immigration and Naturalization Services, or to other states will be sent to the Department of Health, Bureau of Communicable Diseases, TB Control Section, and the jail program coordinator.

IX. RELEVANT FORMS AND DOCUMENTS:

- A. ACA Standards 3-4348, 3-4349, 3-4350 4-4354, 4-4355, 4-4361, 4-4362, 4-4363, 4-4365, 3-4360, 3-4363, and 3-365
- B. F.S. Chapter 392
- C. F.A.C. 64D-3.029
- D. Centers for Disease Control and Prevention-MMWR Recommendations and Reports, Volume 55, No. RR-9, July 7, 2006: Prevention and Control of Tuberculosis in Correctional and Detention Facilities: Recommendations from CDC
- E. Management of Tuberculosis, Federal Bureau of Prisons, Clinical Practice Guidelines, January 2010
- F. DC4-520C, Tuberculosis Symptoms Questionnaire for Inmates
- G. DC4-706, Health Services Profile

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- H. DC4-710A, Immunization Record
- I. DC4-711B, Consent and Authorization For Use and Disclosure Inspection and Release of Confidential Information
- J. DC4-719, Tuberculosis/INH Treatment for Latent TB Infection (LTBI) Nursing Evaluation
- K. DC4-719B, Inmate KOP INH Medication Form
- L. DC4-758, Tuberculosis/INH Health Information Summary
- M. DC4-772, Inmate Contact Database Form
- N. DC4-776, Employee Contact Database Form
- O. DC4-782B, Tuberculosis Symptoms Questionnaire for Employees
- P. DC4-871, County Jail To DC Health Information Transfer Summary
- Q. Attachment #1 Reception Tuberculosis Screening Algorithm
- R. Attachment #2 - Preferred Drug Regimen for Treatment of Active TB
- S. Environmental Health and Safety Manual, Chapter 12, Tuberculosis Exposure Control
- T. Department Of Health Forms:
 - 1. TB Case and Suspect Reporting Requirements
 - 2. DH2123 Evaluation Sheet for Contact Investigations in Corrections
- U. Center for Disease Control and Prevention Forms:
 - 1. CDC 72.9B Follow-Up 1
 - 2. CDC 72.9C Follow-Up 2

Health Services Director

Date

This Health Services Bulletin Supersedes:

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