TBeat

A newsletter produced by the Heartland National TB Center

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In this issue..

TB Centers of Excellence

HNTC is proud to share that it has been selected as one of four TB Centers of Excellence (TB COE) in the U.S. Along with this new 5 year cycle, CDC has assigned a new HNTC region which consists of: Texas, Oklahoma, Kansas, Nebraska, South Dakota, North Dakota, Iowa, Missouri, Arkansas and Louisiana. The Heartland team is very excited about expanding collaborations and partnerships and look forward to serving you as a TB COE.

In line with the CDC's goal of preventing, treating, and controlling TB disease and LTBI, and the vision for the TB COE's, Heartland's activities will focus on (1) increasing knowledge, skills, and abilities for TB prevention and control through communication, education, and training activities, and (2) improving sustainable evidence-based TB clinical practices and patient care through the provision of expert medical consultation.

Additional TB COE's covering the nation are: the Curry International TB Center, the Southeastern National TB Center, and the Global TB Institute.

Letter by Philip A. LoBue:

http://www.heartlandntbc.org/temp/eblast/Dear_Colleague.pdf

Please see the next page for the new TB Centers of Excellence for Training, Education, and Medication Consultation (COE) Areas of Coverage, 2018. This can also be accessed via the following link:

http://www.heartlandntbc.org/temp/eblast/COE_map.pdf

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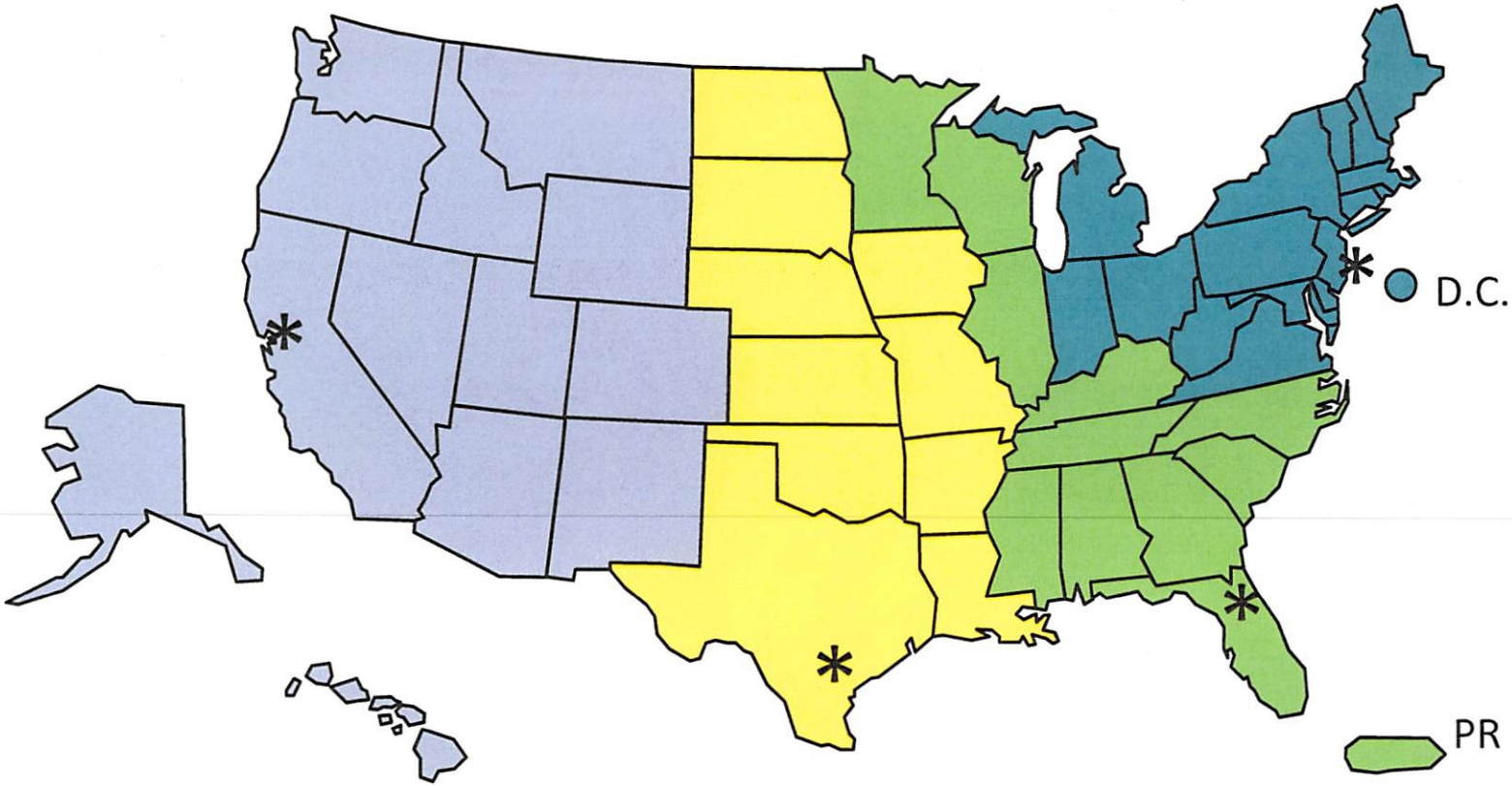
TB Centers of Excellence for Training, Education, and Medical Consultation (COE) Areas of Coverage, 2018



Region 1, Curry International TB Center
Region 2, Heartland National TB Center
Region 3, Global TB Institute
Region 4, Southeastern National TB Center

*COE Location

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TB-BIT: HNTC Recently Revised / Published Products

HEARTLAND NATIONAL TB CENTER
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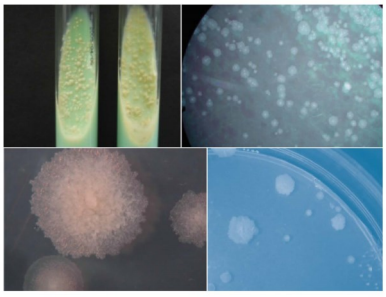
CASE STUDIES IN TUBERCULOSIS

Nurse Case Management Training Tools for Patient Success

EXCELLENCE | EXPERTISE | INNOVATION



A Clinician's Guide to the TB Laboratory

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EXCELLENCE · EXPERTISE · INNOVATION

GUIDELINES FOR HOME AND HOSPITAL ISOLATION OF INFECTIOUS TUBERCULOSIS PATIENTS[a,b]

Patient Characteristics at Diagnosis	Hospitalized under AII and being released to:	Discharge Criteria for Release from AII for Adults and Children with Pulmonary Disease
AFB smear positive NAA test positive Patient is suspected of having active TB	• General hospitalization • Outpatient congregate setting • Home or setting with high-risk contacts	1) Received the standard four drug regimen for at least 2 weeks if original AFB smear positive OR is on therapy for 5-7 days if original AFB smear was negative; **AND** 2) Demonstrates clinical improvement and adherence to DOT; **AND** 3) Three consecutive negative AFB smears collected at least 8 hours apart with at least 1 early morning specimen; **AND** 4) No risk factors for drug resistance.
AFB smear negative, TB is not suspected NAA test is negative and/or another diagnosis is likely	• General hospitalization • Returning to school • Returning to work • Use of public transportation	1) Three consecutive negative AFB smears collected at least 8 hours apart with at least 1 early morning specimen; **AND** 2) TB is not likely and another diagnosis has been identified.
AFB smear negative **AND** *TB is suspected or confirmed through NAA testing*	Return to normal activities including: • General hospitalization • Returning to school • Returning to work • Use of public transportation	1) Received the standard four drug regimen for at least 5-7 days; **AND** 2) Demonstrates clinical improvement and adherence to DOT; **AND** 3) Three consecutive negative AFB smears collected at least 8 hours apart with at least one early morning specimen; **AND** 4) No risk factors for drug resistance.
Confirmed MDR- or XDR-TB disease	Return to normal activities including: • Returning to school • Returning to work • Use of public transportation	1) Receiving and tolerating appropriate MDR-TB regimen; **AND** 2) Demonstrates clinical improvement and adherence to DOT; **AND** 3) Three consecutive negative AFB cultures[c]. **Expert opinion varies; some experts satisfied with negative smears*

[a]Individuals who are returning to work or live in environments with immunocompromised individuals (neonates, HIV+, transplant recipients, etc.) should be considered individually; more conservative measures should be considered
[b]A person suspected of/confirmed of TB may be released from hospital to home setting if there are no high risk individuals in the home, even if they do not meet the criteria for release from isolation. Clinical judgement and consultation with public health is recommended.

***AFB** - Acid-fast bacilli **AII** - airborne infection isolation **DOT** - Directly Observed Therapy **MDR** - Multi-drug resistant **NAA** - Nucleic Acid Amplification **TB** - Tuberculosis **XDR** - Extensively-drug resistant*

GUIDELINES FOR HOME AND HOSPITAL ISOLATION OF INFECTIOUS TUBERCULOSIS PATIENTS[a,b]

Factors that Predict Transmission	
Susceptibility	Immune status of the exposed individual; ie. HIV infection, organ transplant, immunosuppressive therapy, diabetes, kidney disease, IV drug use, etc.)
Infectiousness	A patient who expels many tubercle bacilli are more infectious than a patient who expel few or no bacilli
Exposure	The longer, more frequent and close in proximity an individual is to an infectious person, the higher the chance for transmission
Clinical Factors	Presence of cough, failure to cover mouth and nose when coughing, respiratory tract disease, inappropriate or inadequate treatment (drugs, duration), high sociability of a patient.**This list is not all-inclusive*
Anatomical site	The following are the most infectious: pulmonary TB disease, extrapulmonary TB in addition to pulmonary tb, disease located in the oral cavity or the larynx or disease in an open abscess or lesion
Radiographic	Most infectious: cavitation (vs. noncavitary disease) on chest radiograph, positive AFB sputum smear and positive culture
Age	Transmission from children <10 years is unusual unless the chest radiograph is similar to adult pulmonary disease and/or shows cavitary changes
Adherence	Inadequate treatment can prolong the period of infectiousness and put the patient at risk for drug-resistant TB disease. Some patients with severe disease will remain smear and culture positive after several weeks of treatment however, isoniazid and rifampin are associated with a more rapid conversion.

Frequently Asked Questions

Is an AII room the same as a negative-pressure isolation room?
An AII room is a special negative-pressure room for the specific purpose of isolating persons who might have suspected or confirmed infectious TB disease from other parts of the setting. Not all negative-pressure rooms are AII rooms because they might not have the required air flow or differential pressure.

When can airborne precautions in a healthcare or congregate setting be discontinued?
When a patient has been on adequate therapy for 2 weeks or longer, symptoms improve, and there have been three consecutive, negative AFB sputum smear results with at least one being an early morning specimen.

Can a patient on home isolation go out as long as he wears a mask?
Patients with infectious disease should stay in the home unless travelling to a necessary medical appointment. A patient may engage in outdoor activities while avoiding close face-to-face contact.

What if the patient remains smear positive but cultures come back negative?
Negative cultures contain nonviable organisms. The mycobacteria are dead and not capable of spreading disease. HCW's may consider this patient for release from isolation when accompanied with other factors.

References
1. *Guidelines for the Investigation of Contacts of Persons with Infectious Tuberculosis: Recommendations from the National Tuberculosis Controllers Association and CDC.* Centers for Disease Control and Prevention. MMWR: December 16, 2005: Volume 54 (RR-15); p1-37.
2. *Guidelines for Preventing the Transmission of Mycobacterium tuberculosis in Health-Care Settings.* Centers for Disease Control and Prevention. MMWR: December 30, 2005: Volume 54 (RR17).
3. *Controlling Tuberculosis in the United States.* Centers for Disease Control and Prevention. MMWR: November 4, 2005: Volume 54 (RR12a).
4. *Introduction to the Core Curriculum on Tuberculosis: What the Clinician Should Know.* Centers for Disease Control and Prevention. 6th Edition, 2013.

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Revised March 2017

TB in the Community

This educational flipchart was produced by
Heartland National TB Center
in partnership with the
South Central AIDS Education & Training Center

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AETC AIDS Education & Training Center Program South Central

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Table 12. Dosing Recommendations for Adult Patients with Reduced Renal Function[a]

Drug	Change in Frequency?	Recommended Dose and Frequency for Patients with Creatinine Clearance <30 mL/min*
Isoniazid	No	300 mg once daily, or 900 mg 3 times/wk
Rifampin	No	600 mg once daily, or 600 mg 3 times/wk
Pyrazinamide	Yes	25-35 mg/kg/dose 3 times/wk (not daily)
Ethambutol	Yes	20-25 mg/kg/dose 3 times/wk (not daily)
Levofloxacin	Yes	750-1000 mg/dose 3 times/wk (not daily)
Moxifloxacin	No	400 mg once daily
Cycloserine	Yes	250 mg once daily, or 500 mg/dose 3 times/wk[b]
Ethionamide	No	250-500 mg/dose daily
Para-amino salicylic acid	No	4 g/dose twice daily
Streptomycin	Yes	15 mg/kg/dose 2-3 times/wk (not daily)
Capreomycin	Yes	15 mg/kg/dose 2-3 times/wk (not daily)
Kanamycin	Yes	15 mg/kg/dose 2-3 times/wk (not daily)
Amikacin	Yes	15 mg/kg/dose 2-3 times/wk (not daily)

*Including only patients receiving hemodialysis. [b]The appropriateness of 250 mg daily dose has not been established.
Please note: Standard doses are given unless there is intolerance; there should be careful monitoring of neurotoxicity; the medications should be given after hemodialysis on the day of hemodialysis; and monitoring of serum drug concentrations should be considered.

Revised 2/20/2017

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Tuberculosis Treatment Guidelines

Table 2. Drug Regimens for Microbiologically Confirmed Pulmonary Tuberculosis Caused by Drug-Susceptible Organisms

Table 12. Dosing Recommendations for Adult Patients with Reduced Renal Function, Including Adults Patients receiving Hemodialysis

Reference: Official American Thoracic Society, Centers for Disease Control and Prevention, Infectious Disease Society of America Clinical Practice Guidelines: Treatment of Drug-Susceptible Tuberculosis Clinical Infectious Diseases • 2016

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	RIF PZA EMB	(8 wk), or 5 d/wk for 40 doses (8 wk)	RIF	54 doses (18 wk)		which more frequent DOT during continuation phase is difficult to achieve.
3	INH RIF PZA EMB	3 times weekly for 24 doses (8 wk)	INH RIF	3 times weekly for 54 doses (18 wk)	78	Use regimen with caution in patients with HIV and/or cavitary disease. Missed doses can lead to treatment failure, relapse, and acquired drug resistance.
4	INH RIF PZA EMB	7 d/wk for 14 doses then twice weekly for 12 doses	INH RIF	Twice weekly for 36 doses (18 wk)	62	Do not use twice-weekly regimens in HIV-infected patients or patients with smear-positivie and/or cavitary disease. If doses are missed, then therapy is equivalent to once weekly, which is inferior.

Regimen Effectiveness: Greater ↑ Lesser

a Other combinations may be appropriate in certain circumstances; b When DOT is used, drugs may be given 5 days per week and the necessary number of doses adjusted accordingly. Although there are no studies that compare 5 with 7 daily doses, extensive experience indicates this would be an effective practice. DOT should be used when drugs are administered <7 days per week; c Based on expert opinion, patients with cavitation on initial chest radiograph and positive cultures at completion of 2 months of therapy should receive a 7-month (31-week) continuation phase; d Pyridoxine (vitamin B6), 25–50 mg/day, is given with INH to all persons at risk of neuropathy (eg, pregnant women; breastfeeding infants; persons with HIV, patients with diabetes, alcoholism, malnutrition, or chronic renal failure; or patients with advanced age). For patients with peripheral neuropathy, experts recommend increasing pyridoxine dose to 100 mg/day; e See [426]. Alternatively, some US tuberculosis control programs have administered intensive-phase regimens 5 days per week for 15 doses (3 weeks), then twice weekly for 12 doses.

DOT-directly observed therapy; EMB-ethambutol; INH-isoniazid; PZA-pyrazinamide; RIF-rifampin

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Trainings

2018 HNTC Training Calendar

Date(s)	Course	Location

TO BE PUBLISHED IN FEBRUARY

The calendar will be updated in every newsletter as well as on the website to show trainings that have been confirmed

Please visit our website: **http://www.heartlandntbc.org/training/calendar.php** to find detailed information concerning registration and participation.

Proposed topics are subject to change; check website for the latest updates.

Products from the Heartland National TB Center are available for download at **http://www.heartlandntbc.org/products/**

Resources

TB Education and Training Network

http://www.cdc.gov/tb/education/Tbetn/default.htm

National TB Controllers Association

http://www.tbcontrollers.org

Find TB Resources

www.findtbresources.org

Tuberculosis Epidemiologic Studies Consortium (TBESC)

http://www.cdc.gov/tb/topic/research/TBESC/default.htm

Regional Training and Medical Consultation Centers' TB Training and Education Products

https://sntc.medicine.ufl.edu/rtmccproducts.aspx

Program Collaboration and Service Integration (PCSI)

http://www.cdc.gov/nchhstp/programintegration/Default.htm

Centers for Disease Control and Prevention, Division of Tuberculosis Elimination

http://cdc.gov/tb/

****If your organization has any additional links for TB resources that you would like published, please send them to Alysia.Wayne@uthct.edu****

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The MISSION of the Heartland National TB Center is to build capacity with our partners. We will share expertise in the treatment and prevention of tuberculosis by: developing and implementing cutting-edge trainings, delivering expert medical consultation, providing technical assistance, and designing innovative educational and consultative products.

The VISION of Heartland National TB Center is to provide *excellence*, *expertise*, *innovation* in training, medical consultation, and product development to reduce the impact of tuberculosis in our region.

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