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HEARTLAND NATIONAL TB CENTER
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TBeat

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In This Issue...

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World TB Day: March 24, 2009
I Am Stopping TB

World TB Day, observed annually on March 24th, serves as a reminder to the community at large of the importance of TB control and elimination. In 2009, TB remains an epidemic in many countries around the globe. Millions of lives are affected by TB, thus World TB Day commemorates their stories and is an opportunity to raise public awareness to the face of TB.

World TB Day was first celebrated on March 24th 1982, one century after Dr. Robert Koch identified *Mycobacterium tuberculosis* as the bacteria that caused tuberculosis. In 1882 when Dr. Koch's discovery was made, TB killed one out of every seven people in Europe and the United States.[1] Dr. Koch's important discovery paved the way towards the advances in diagnosing and curing this deadly disease.

In 1982, the first World TB Day was sponsored by the World Health Organization in collaboration with the International Union Against Tuberculosis and Lung Disease. The event was held to increase awareness and educate communities across the globe about the devastating effects of TB. Since its inception World TB Day has been an occasion for voicing problems and solutions, organizing educational activities, and building partnerships.

Seventeen years later, World TB Day 2009's slogan ***I am stopping TB*** is a reminder that TB elimination starts locally. This slogan empowers the public and encourages us to make TB control an active and personal effort.

FOOTNOTES:

[1] http://www.cdc.gov/tb/WorldTBDay/History.htm

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Here is glimpse of how World TB Day 2009 was celebrated throughout our Heartland region:

Arizona:

- Heartland National TB Center partnered with the Arizona Department of Health Services, TB Control, to conduct a course on "TB 101 and Training Basics" March 24-25, 2009. The goal was to raise awareness of TB as a differential diagnosis for at-risk patients in order to reduce transmission.

Illinois:

- The Tuberculosis Coalition of Respiratory Health Association hosted an event called CSI: Collaborating to Stop Infection. The event was a collaboration of public and private entities. Workshops included T-Spot, Emergency Preparedness, Case Study Investigation (an interactive workshop), and a panel called Collaboration-MDR Case Study.

Minnesota:

- To observe World TB Day, "I AM STOPPING TB" banners written in 5 languages were placed on Rochester city transit buses.
- World TB Day Brown Bag Lunch (organized by the University of Minnesota Rochester and The Rochester Healthy Communities Partnership) at University of Minnesota Rochester events included a special presentation by Dr. Nicole Zitterkopf entitled: "Fact or Fiction? Tuberculosis Infection Revisited."

Texas:

- In collaboration with Hidalgo County Health and Human Services, the Mexican Consulate "Ventanilla de Salud Program" provided TB education materials to clients visiting the consulate.
- The Texas Department of State Health Services hosted an educational program to commemorate World TB Day. The morning activities highlighted the collaborative relationships among health jurisdictions, community based organizations, public health associations, advocacy groups, and the regional training and medical consultation centers as they relate to TB prevention and control. Afternoon activities included presentations on a new system for obtaining genotyping information about TB patients and a new system for billing Medicaid for TB clinic services.
- The San Antonio Metropolitan Health District observance of World TB Day included a program detailing *Tuberculosis in Bexar County*. Dr. Fernando Guerra, Director of Health, provided opening remarks to inform stakeholders and the public about TB's impact on our community.

Source: http://www.cdc.gov/tb/WorldTBDay/2009/activities.htm

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

State Profiles

In order to better acquaint our readers and partners with each other, we will be showcasing two states within the Heartland region in every newsletter edition. With this addition to the newsletter we hope to increase awareness and foster potential partnerships throughout the region. In this issue we will focus on South Dakota and New Mexico.

South Dakota:

During the last decade an average of 15 TB cases per year have been reported to the South Dakota Department of Health. In 2007, the state incidence rate was 1.7 per 100,000 population. These figures are part of a gradual decline in TB cases in South Dakota over the past few decades.

Native Americans have historically represented the highest percentage of TB cases in ethnic minorities; however in 2008 Blacks made up the highest percentage of TB cases at 63%. Conversely, Native Americans only contributed 25% of the total TB cases reported. The increase of cases in other ethnic minority groups such as Blacks reflects TB within the foreign-born population. In 2008 69% of all TB cases in South Dakota were foreign-born persons, or U.S.-born children of foreign-born persons.

The South Dakota Department of Health has jurisdiction for all TB control activities in the state as there are no local health departments. Their staff is comprised of a Tuberculosis Control Program Coordinator, 19 Disease Intervention Specialists, and several Community Health Nurses throughout the state. Due to South Dakota's low incidence case rate and small staff their training and educational needs are centered on keeping clinical staff up to date on the latest treatment and management guidelines.

In recent years The South Dakota Department of Health has achieved several major successes in TB control:

- Reducing TB to less that 3.5 cases per 100,00 overall and less than 15 cases per 100,000 Native American cases
- Successful completion of treatment for 2 multi-drug resistant cases transferred from other states
- Treatment of **100%** of 26 persons identified in a 2008 outbreak, including 9 active TB cases

As The South Dakota Department of Health has effectively met recent programmatic goals, they plan to assess and plan for new goals in the near future to further reduce the impact of TB in their region.

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New Mexico Department of Health:

The southwestern state of New Mexico with approximately 2 million residents is considered a low-incidence state for TB. However, after having seen a steady decline in TB cases in the first part of the decade, New Mexico has seen year-to-year increases in cases since 2005. In 2007, there were 51 cases of active tuberculosis reported to the New Mexico Department of Health (NMDOH), which is a 6% increase from 2006. The incidence rate was 2.54 per 100,000 population, compared to the national year 2000 target of $\leq$ 3.5 cases per 100,000. Preliminary data for 2008 indicate 60 cases of active tuberculosis were reported; resulting in an incidence rate of 2.92 per 100,000, which is a 17.6% increase from 2007.

In New Mexico racial and ethnic minorities continue to experience a disproportionate burden of TB within the state. In 2007, Asians represented 1.3% of the total population in New Mexico, but accounted for 6% of TB incidence. American Indians/Alaskan Natives represented 10% of the New Mexico population, but accounted for 22% of all new TB cases. Hispanics of any race represented 44% of the state population, but made up 53% of TB cases. Almost half of active TB cases in New Mexico occurred among foreign-born persons, the majority of whom were from Mexico.

Risk factors for tuberculosis in New Mexico in 2007 were similar to those of the United States for 2006. More than half of TB cases in 2007 reported having been unemployed in the past 24 months (51% in NM vs. 53% in the U.S.). Other similarities between New Mexico cases and U.S. cases were that 2% of cases were injection drug users and 4% were residents of a correctional facility at the time of diagnosis. In New Mexico however, a higher percentage of cases were homeless (10% compared to 6%) and reported excess alcohol use during the past year (27% compared to 14%).

In 2008 NMDOH achieved several significant accomplishments:

- A partnership with Heartland to offer the first TB Nurse Case Management course for public health nurses in NM
- Coordinating and conducting a contact investigation within a severely immunosuppressed patient population with over 300 identified contacts and involving the paired use of tuberculin skin testing and interferon-gamma release assays
- Drafting an amendment to the New Mexico Public Health Act for consideration by the 2009 state legislature that will expand the criteria under which non-adherent TB clients can be isolated and/or court-ordered to take directly observed therapy

As for the future of the New Mexico Department of Health program, in 2009 they intend to continue strengthening the TB nurse case management model and improving TB contact investigation activities. In order to achieve this goal, a contact investigation workshop targeted to the theory and practical aspects of the contact investigation process for public health nurses is a top priority for 2009. Subsequently, training for health care staff serving high-risk populations is considered a priority.

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Training Calendar

Heartland National TB Center — 2009 Trainings

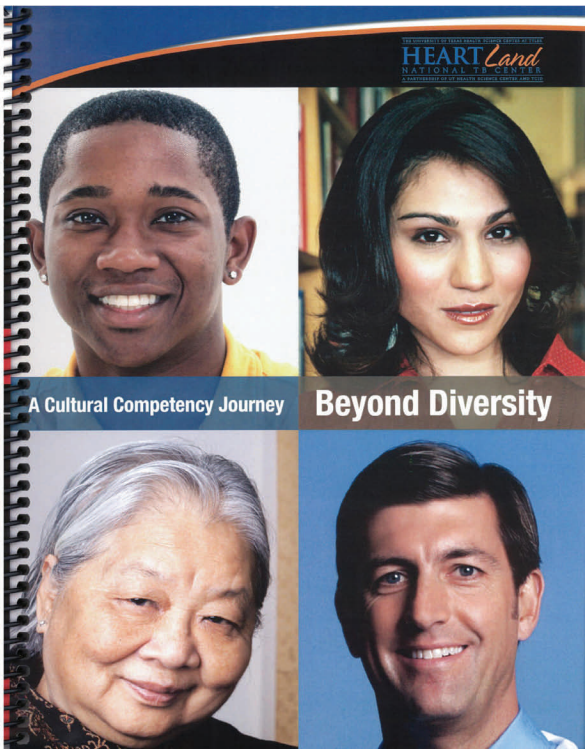
Please go to http://www.heartlandntbc.org/training.asp for course information, staff contact information and registration dates for each course. Proposed topics and dates are subject to change; check the website for the latest updates.

Date	Course	Location
March 31-April 2	TB Nurse Case Management	Waukesha, Wisconsin
April 3	MDR Primer	Waukesha, Wisconsin
April 21-23	TB Program Management	Overland, Kansas
April 22	TB in Corrections	Collinsville, Illinois
June 1-3	TB Intensive	Tyler, Texas
June 19	TB Updates for the Physician	Rochester, Minnesota
July 14-16	TB Nurse Case Management	Arlington, Texas
October 7	TB Updates; Midwest TB Controllers Mtg	Bismarck, ND
October 20-22	TB Nurse Case Management	Salina, Kansas
November	TB Intensive	Houston, Texas
November 18	TB Diagnostic Challenges	Oklahoma City, Ok
December 8-10	TB Nurse Case Management	San Antonio, Texas

Plus several regional webinars and a national webinar; dates and topics to be announced.

Introducing

Beyond Diversity: A Journey to Cultural Competency



Heartland would like to announce the publication of its newest product—*"Beyond Diversity: A Journey to Cultural Competency."* This facilitator-led guide is intended to build internal capacity within TB programs by assisting trainers to educate their colleagues on issues of cultural competency. It has been designed to provide trainers with exercises that can be used to conduct an interactive, skill-building workshop. It will improve the knowledge and proficiency of both new and experienced staff working in the field of TB and to serve as a resource for preparing trainers to teach. It provides example agendas, activities and guidance for facilitating a cultural competency workshop.

The manual is available in hard copy by mail; the form to place your order is on Heartland's website—http://www.heartlandntbc.org/products/orderform.pdf. It is also available as a downloadable PDF file on the Heartland website and the Joint RTMCC Products page.

Related Resources

- Division of TB Elimination, CDC
- World Health Organization, Tuberculosis
- Find TB Resources
- Joint RTMCC Products Page
- National Tuberculosis Curriculum Consortium
- Stop TB Partnership
- Global Health Facts on TB
- Tuberculosis Research Today
- Migrant Clinicians Network: Tuberculosis
- National Health Care for the Homeless Council: Tuberculosis Resources
- Tuberculosis Virtual Resource Center
- World Resources Institute: Tuberculosis and Urban Inequality
- AIDS Education and Training Centers National Resources Center
- National Institute of Corrections
- Partners in Health
- National Network of Libraries of Medicine: Health Literacy

Recent Publications

- Trends in Tuberculosis - United States 2008
  MMWR 2009; 58 (No. 10, 249-253)
- Two Simultaneous Outbreaks of Multidrug-Resistant Tuberculosis Federated States of Micronesia, 2007—2009
  MMWR 2009; 58 (No. 10, 253-256)
- Investigation of a Genotype Cluster of Tuberculosis Cases — Detroit, Michigan, 2004–2007
  MMWR March 12, 2009; 58 (No. 09, 226-229)
- Causes of Death in HIV-infected Persons Who Have Tuberculosis, Thailand

  Cain KP, Anekthananon T, Burapat C, Akksilp S, Mankhatitham W, Srinak C, et al. Causes of death in HIV-infected persons who have tuberculosis, Thailand. Emerg Infect Dis [serial on the Internet]. 2009 Feb [*date cited*]. Available from http://www.cdc.gov/EID/content/15/2/258.htm
- Vaccine-induced Immunity Circumvented by Typical *Mycobacterium tuberculosis* Beijing Strains

  Kremer K, van der Werf MJ, Au BKY, Anh DD, Kam KM, van Doorn HR, et al. Vaccine-induced immunity circumvented by typical *Mycobacterium tuberculosis* Beijing strains. Emerg Infect Dis [serial on the Internet]. 2009 Feb [date cited]. Available from http://www.cdc.gov/EID/content/15/2/335.htm
- Immune Response to *Mycobacterium tuberculosis* and Identification of Molecular Markers of Disease

  Mercedes Gonzalez-Juarrero[1], Luke C. Kingry[1,2], Diane J. Ordway[1], Marcela Henao-Tamayo[1], Marisa Harton[1], Randall J. Basaraba[1], William H. Hanneman[3], Ian M. Orme[1] and Richard A. Slayden[1,2] Am. J. Respir. Cell Mol. Biol. 2009; 40: 398-409. First published online September 11 2008 as doi:10.1165/rcmb.2008-0248OC

Case Presentation
Utilizing Mental Health Assessments to Improve TB Outcomes

Case History:

A 48 year old Caucasian male was diagnosed with pulmonary tuberculosis in May 2006. The patient's initial isolate was resistant to isoniazid, ethionamide, levofloxacin, ofloxacin, and moxifloxacin. The patient had a history of head injuries and a seizure disorder with reports of personality changes present since 1999. Patient was HIV and Hepatitis C positive. Previous history also included cocaine and alcohol dependence with IV drug use.

TB treatment was initiated, but complicated by elevated liver enzymes and multiple drug-drug interactions. A psychiatric evaluation was scheduled; however for unknown reasons patient did not follow through. The patient's medications included Xanax 0.5 mg orally three times daily and Trazadone 150 mg orally as needed at bedtime as prescribed by his primary care physician. During TB treatment, the patient continued to drink alcohol when depressed causing liver enzymes to continue on an upward trend. TB medications were discontinued January 1, 2007 when liver enzymes were noted to be 8 times the upper limit of normal. At this time the patient was admitted for further evaluation and care.

Upon admission, the patient described himself as anxious, depressed, and as having severe mood swings with long periods of insomnia. A mental status evaluation revealed a cooperative, well-groomed individual with noticeably pressured speech, flight of ideas, and anxiety. After the complete psychiatric evaluation the patient was diagnosed with bipolar disorder and recommended to discontinue Trazadone and Xanax, noting the Trazadone may contribute to manic episodes. Consequently, Zyprexa was initiated as a mood stabilizer.

After the initiation of the Zyprexa, the patient appeared less anxious, happier, and with normalization of speech and thought processes. A weight gain of 12 lbs in six weeks and a good adherence to TB medications was also noted. No problems with alcohol or substance abuse were reported.

Background:

Researchers note that there are many social and behavioral determinants involved in tuberculosis transmission, identification, and treatment success (1). Factors such as mental illness place individuals at high risk for treatment failure and poor adherence.

A multidisciplinary approach to care is the most effective strategy when caring for patients with co-morbidities including tuberculosis. Sharing patient information becomes a crucial factor in the provision of effective health care; especially at it relates to a patient's TB treatment regimen and follow up care (1). Determination of the patient's mental status as part of the initial evaluation to identify barriers to treatment leads to improved treatment outcomes. Measures for addressing co-existent mental health issues should be part of the patient's case management plan.

An effective assessment tool, "The Mental Status Exam" or "MSE" is an examination of a patient's mental status designed to test the cognitive ability, appearance, emotional mood, speech and thought patterns of an individual. The most commonly used test of cognitive

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Case Presentation *continued from Page 7*

functioning is the Folstein Mini-Mental Status Examination (MMSE), developed in 1975 (2). The purpose of a mental status examination is to assess the presence and extent of a person's mental impairment. The cognitive functions that are measured during the MSE include the person's sense of time, place, and personal identity; memory; speech; general intellectual level; mathematical ability; insight or judgment; and reasoning or problem-solving ability. The MMSE of Folstein evaluates five areas of mental status, namely, orientation, registration, attention and calculation, recall and language (2). All TB patients require an adequate mental status assessment before starting anti-tuberculosis therapy. Failure to properly diagnose and treat mental health issues prior to initiating TB therapy are associated with poor treatment outcomes.

Teaching Points:

A complete MSE is more comprehensive and evaluates the following ten areas of functioning:

- Appearance: The examiner notes the person's age, race, sex, civil status, and overall appearance. These features are significant because poor personal hygiene or grooming may reflect a loss of interest in self-care or physical inability to bathe or dress oneself.
- Movement and behavior: The examiner observes the person's gait (manner of walking), posture, coordination, eye contact, facial expressions, and similar behaviors. Problems with walking or coordination may reflect a disorder of the central nervous system.
- Affect: Affect refers to a person's outwardly observable emotional reactions. It may include either a lack of emotional response to an event or an overreaction.
- Mood. Mood refers to the underlying emotional "atmosphere" or tone of the person's answers.
- Speech: The examiner evaluates the volume of the person's voice, the rate or speed of speech, the length of answers to questions, the appropriateness and clarity of the answers, and similar characteristics.
- Thought content: The examiner assesses what the patient is saying for indications of hallucinations, delusions, obsessions, symptoms of dissociation, or thoughts of suicide. Dissociation refers to the splitting-off of certain memories or mental processes from conscious awareness. Dissociative symptoms include feelings of unreality, depersonalization, and confusion about one's identity.
- Thought process: Thought process refers to the logical connections between thoughts and their relevance to the main thread of conversation. Irrelevant detail, repeated words and phrases, interrupted thinking (thought blocking), and loose, illogical connections between thoughts, may be signs of a thought disorder.
- Cognition: Cognition refers to the act or condition of knowing. The evaluation assesses the person's orientation (ability to locate himself or herself) with regard to time, place, and personal identity; long- and short-term memory; ability to perform simple arithmetic (counting backward by threes or sevens); general intellectual level or fund of knowledge (identifying the last five Presidents, or similar questions); ability to think abstractly (explaining a proverb); ability to name specified objects and read or write complete sentences; ability to understand and perform a task (showing the examiner how to comb one's hair or throw a ball); ability to draw a simple map or copy a design or geometrical figure; ability to distinguish between right and left.
- Judgment: The examiner asks the person what he or she would do about a common sense problem, such as running out of a prescription medication.
- Insight: Insight refers to a person's ability to recognize a problem and understand its nature and severity.

Continued on Page 9

Case Presentation *continued from Page 8*

- Conditions such as mental illness place individuals at high risk for treatment failure and poor adherence (2).
- Measures for addressing mental health issues should be a part of the TB patient's case management plan.
- Ineffective mental health diagnosis and treatment is associated with poor treatment outcomes.
- A multidisciplinary approach to care is an effective component when caring for patients with multiple co-morbidities including TB.

Footnotes:

1. Centers for Disease Control and Prevention. Tuberculosis Behavioral and Social Science Research Forum: Planting the Seeds for Future Research. Proceedings of the Tuberculosis Behavioral and Social Science Research Forum; December 10–11, 2003; Atlanta, GA: U.S. Department of Health and Human Services, CDC; 2005.
2. Frey, Rebecca, PhD. Gale Encyclopedia of Medicine. Gale Group, 2002.

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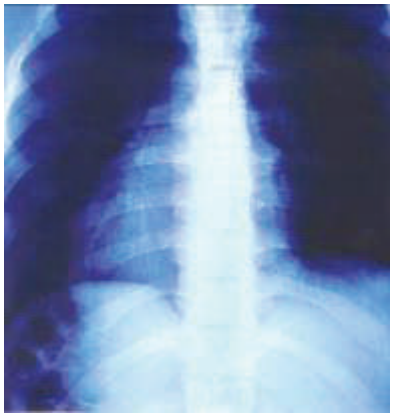
Toll Free Telephone Number: 1-800-TEX-LUNG (1-800-839-5864)



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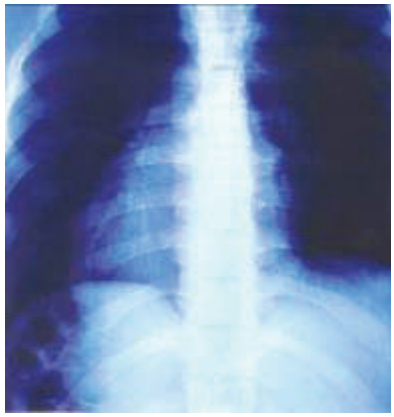

The MISSION of the Heartland National TB Center is to build capacity with our partners. We will share expertise in the treatment and prevention of tuberculosis by: developing and implementing cutting-edge trainings, delivering expert medical consultation, providing technical assistance, and designing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