

In This Issue...

- Special Report
- Recent Publications
- Highlights
- *TBit*
- News Updates from the TB Field
- Training Calendar

To Contact Us

Mailing address:

Heartland National TB Center
2303 SE Military Drive
San Antonio, TX 78223

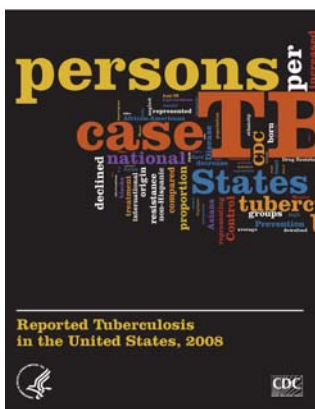
Telephone Number:

1-800-TEX-LUNG
(800-839-5864)

Fax Numbers:

Administration
(210) 531-4590
Medical Consultation
(210) 531-4500

www.HeartlandNTBC.org



Special Report

The Heartland National TB Center serves 13 states: Arizona, Illinois, Iowa, Kansas, Minnesota, Missouri, Nebraska, New Mexico, North Dakota, Oklahoma, South Dakota, Texas, and Wisconsin. These states represent 24.7% of the total population of the United States and 22.5% of the total tuberculosis cases reported for 2008. The following are highlights as they compare to the national report, *Reported Tuberculosis in the United States, 2008* released September, 2009.

Case Counts: 2901 TB cases were reported to the Centers for Disease Control and Prevention (CDC) in 2008 from the 13 states making up the Heartland region, representing a 6.6% decrease from 2007 (n=3105). This represents a more significant decline than the 2.9% decrease reported nationally.

- Four out of thirteen states reported increased case counts: Iowa, Nebraska, South Dakota, and New Mexico
- Texas accounts for 52% of the cases, but only 32% of the population in the region
- Hispanics were more prevalent (40%) than other racial or ethnic groups in the region. This is also true for Hispanics nationally (29%) when compared to all other racial and ethnic groups. However, the difference is more pronounced in the Heartland region than nationally (Odds Ratio (OR) = 1.7 Confidence Interval (CI) 1.63-1.94).
- In the Heartland region, African-Americans (24%) surpass Asians (17%) as the second largest racial or ethnic group. Nationally, Asians (26%) have surpassed non-Hispanic blacks or African-Americans (25%) as the second largest racial or ethnic group. The rest of the nation is significantly more likely to report TB in Asians than the Heartland region (OR 1.92 CI 1.72-2.13).

Case Rates: In 2008, the TB case rate in the Heartland region declined from 4.1 to 3.9 per 100,000, representing a 4.9% decrease from 2007. Again, this exceeds the national rate of decline of 3.8%.

HNTC Staff

Medical Director

Barbara Seaworth, MD
(210) 534-8857
barbara.seaworth@dshs.state.tx.us

Assistant Medical Director

David Griffith, MD
(903) 877-7267
UTHC Tyler
david.griffith@uthct.edu

Executive Director

Stephanie Ott, CPM
(210) 531-4542
stephanie.ott@uthct.edu

Training and Product Development

Director, Education & Training
Mary Long, MSPH
(210) 531-4545
mary.long@uthct.edu

Education Specialist

Jessica Quintero
(210) 531-4568
jessica.quintero@uthct.edu

Education/Training Specialist
Position Available
Apply at [UT Health Science Center at Tyler](#)

Web Site & Content
Coordinator
Position Available
Contact [Heartland National TB Center](#)

Special Report continued from Page 1

Case Rates continued

- Texas reported TB rate of 6.2 cases per 100,000 population makes Texas the only state in the region that exceeds the national case rate.
- Ten out of thirteen states in the region met the definition for low incidence (≤ 3.5 cases per 100,000). This is an increase from 2007, when eight out of thirteen states were considered low incidence.

Burden Among the Foreign-Born: The percentage of cases reported in foreign-born persons was 53% of the total cases in the region. This is less but not significantly different than the national total of 59%.

- Forty percent of foreign-born cases in the region are from Mexico. This differs significantly from the rest of the nation (OR 2.7 CI 2.39-3.05) where 38% of TB cases are found in foreign-born from "other countries" followed by 23% of TB cases from Mexico.
- The top six countries of origin were Mexico (40%), India (7.4%), Vietnam (7.2%), Philippines (6%), Guatemala (3.2%), and China (2.1%). All other countries represented 30% of the total foreign born.
- Nine out of thirteen states reported $\geq 50\%$ of their cases were foreign born. Two out of thirteen states reported $\geq 70\%$ of their cases were foreign born. (We rounded up Nebraska!).

Drug Resistance: 8.2% of TB cases that had completed drug susceptibility testing were Isoniazid resistant, and 1% (n=19) were Isoniazid and Rifampin resistant (i.e. multidrug (MDR) resistant). Fourteen out of nineteen of the MDR cases were reported from Texas; the others were from Illinois (n=2), Minnesota (n=2), and Wisconsin (n=1).

Discussion

The Heartland region has made a substantial contribution to the national decline in TB by reducing TB case counts by 6.6%. The national data elucidate several unique challenges for our region. While the majority of cases are foreign-born, a significantly higher percentage of cases are Hispanic and, compared to the rest of the nation, foreign-born cases are more likely to be from Mexico. Certainly this is understandable, given that three states in the Heartland region share a border with Mexico. Also, agriculture and meat-processing industries in the middle and upper Midwest attract a substantial number of immigrant populations, potentially contributing to the disproportionate numbers of Hispanic and Mexican-immigrant TB cases in the Heartland region.

Continued on Page 3

HNTC Staff

Medical Consultation

Nurse Consultant/Educator
Alisha Blair, LVN
(210) 531-4546
alisha.blair@uthct.edu

Nurse Consultant/Educator
Catalina Navarro, RN, BSN
(210) 531-4569
catalina.navarro@uthct.edu

Nurse Consultant/Educator
Debbie Onofre, RN, BSN
(210) 531-4539
debbie.onofre@uthct.edu

Nurse Consultant/Educator
Position Available
Apply at UT Health Science Center at Tyler

Administration

Program Coordinator
Delfina Sanchez, MA
(210) 531-4528
delfina.sanchez@uthct.edu

Administrative Specialist
Alysia Thomas
(210) 531-4549
alysia.thomas@uthct.edu

Administrative Specialist
Position Available
Apply at UT Health Science Center at Tyler

Continued from Page 2

CDC has outlined several strategies to reduce the burden of TB among our foreign-born population, including “improve coordination of TB control activities between the US and Mexico to ensure completion of treatment among TB patients who cross the border” and “test recent arrivals from high incidence countries for latent TB infection and monitor treatment completion” and “survey foreign-born TB patients in the US to determine opportunities for improving prevention and control interventions.”

African Americans represent the second highest minority group in the Heartland Region, which differs from the national picture where Asians have surpassed African Americans in number and percent of cases. CDC recommends “broader prevention efforts” in high-risk populations, such as African Americans and Asians.

Ten out of 13 states in our region are considered “low incidence.” The Heartland region has the greatest percentage of low incidence states when compared to other regions. CDC recommends “continued support to maintain the capacity and expertise needed to respond to future TB cases especially in light of changing immigration patterns.”

Supporting the Heartland and its mission towards providing medical consultation and training through programs and products is a key strategy in maintaining capacity and expertise.

References:

Centers for Disease Control and Prevention. *Reported Tuberculosis in the United States, 2008*. Atlanta, GA, U.S. Department of Health and Human Services, CDC, September 2009. <http://www.cdc.gov/tb/statistics/reports/2008/pdf/2008report.pdf>

Contributors:

Lynelle Phillips, RN, MPH; Consultant, Heartland National TB Center

Craig Lewis, DVM; University of Missouri Masters of Public Health Program Intern.

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.

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.

Recent Publications

Fluoroquinolone Resistance in Mycobacterium tuberculosis: The Effect of Duration and Timing of Fluoroquinolone Exposure. Devasia, R., A. Blackman, et al. 2009. **American Journal of Respiratory and Critical Care Medicine**; Volume 180(4): pp. 365-370.

Increasing Proportions of Advanced Pulmonary Tuberculosis Reported in the United States: Are Delays in Diagnosis on the Rise? Wallace, R., J. Kammerer, et al. 2009. **American Journal of Respiratory and Critical Care Medicine**; Volume 180: pp. 1016-1022. <http://ajrccm.atsjournals.org/cgi/content/abstract/180/10/1016>

Searching for the Tuberculosis "Needle in the Haystack": Do We Need a New Approach to Find Tuberculosis in Countries with a Low Burden of Tuberculosis? Migliori, G. B., S. Weis. 2009. **American Journal of Respiratory and Critical Care Medicine**; Volume 180: pp. 916-917; Editorial. <http://ajrccm.atsjournals.org/cgi/content/full/180/10/916>

Yield of Acid-fast Smear and Mycobacterial Culture for Tuberculosis Diagnosis in People with Human Immunodeficiency Virus. Monkongdee, P., K. McCarthy, et al. 2009. **American Journal of Respiratory and Critical Care Medicine**; Volume 180(9): pp. 903-908.

Time Delays in Diagnosis of Pulmonary Tuberculosis: A Systematic Review of Literature. Sreeramareddy, C., K. Panduru, et al. 2009. **BMC Infectious Diseases**; Volume 9(1): p. 91. <http://www.biomedcentral.com/1471-2334/9/91>

Trends in Tuberculosis Incidence and Their Determinants in 134 Countries. Dye, C., K. Lönnroth, et al. 2009. **Bulletin of the World Health Organization**; Volume 87: pp. 683-691.

Latent Tuberculosis Diagnosis in Children by Using the QuantiFERON-TB Gold In-Tube Test. Lighter, J., M. Rigaud, et al. 2009. **Pediatrics**; Volume 123(1): pp. 30-37.

Standardized Treatment of Active Tuberculosis in Patients with Previous Treatment and/or with Mono-resistance to Isoniazid: A Systematic Review and Meta-analysis. Menzies D., A. Benedetti, A. Paydar, S. Royce, M. Pai, W. Burman, A. Vernon, C. Lienhardt. **Public Library of Science (PLOS) Medicine** 2009; 6(9). Online publication posted September 15, 2009. <http://www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.1000150>

Effect of Duration and Intermittency of Rifampin on Tuberculosis Treatment Outcomes: A Systematic Review and Meta-analysis. Menzies D., A. Benedetti, A. Paydar, I. Martin, S. Royce, M. Pai, A. Vernon, C. Lienhardt. **Public Library of Science (PLOS) Medicine** 2009; 6(9). Online publication posted September 15, 2009. <http://www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.1000146>

Free Article/Research Sites:

BIOMED Central is an STM (Science, Technology and Medicine) publisher which has pioneered the open access publishing model. All original research articles published by BioMed Central are made freely and permanently accessible online immediately upon publication. <http://www.biomedcentral.com/info/about/whatis>

Public Library of Science Medicine is a peer-reviewed, international, open-access journal publishing important original research and analysis relevant to human health. <http://www.plosmedicine.org/static/information.action>

Find TB Resources is the TB Education and Training Resources Website, a service of the Centers for Disease Control and Prevention (CDC), Division of Tuberculosis Elimination (DTBE). You can use this site to search for TB education and training materials, submit TB materials for inclusion in the database, find out how to order TB materials, view the E-Newsletter, locate funding opportunities, get information about TB organizations, find out about upcoming events, sign up for TB-related Electronic Mailing List and digests, locate TB images and TB-related web links, and find out about the TB Education & Training Network (TB ETN). This Website is intended for use by TB and other health care professionals, patients, and the general public. <http://findtbresources.org/scripts/index.cfm>

Highlights

T-SPOT®.TB

T-SPOT.TB is a recent addition to our toolkit for diagnosing **latent** tuberculosis infection (LTBI). T-SPOT.TB is a mail-out blood test that detects the interferon-gamma response of T-lymphocytes to tuberculosis antigens: an interferon-gamma release assay (IGRA). QuantiFERON-TB GOLD is another example of an IGRA.

The antigens used in this test are absent from nearly all non-tuberculous mycobacteria (except *M. jansarii*, *M. szulgai*, and *M. marinum*) (Anderson et al 2000, Behr et al 1999, Lalvani 2003). These antigens are also absent from all Bacille Calmette-Guerin (BCG) vaccine strains, allowing T-SPOT.TB to discriminate between vaccinated and truly infected individuals. This latter point is a historical weakness of Tuberculin Skin Test (TST) via the Mantoux method, especially when testing for TB in foreign-born persons (who are more likely to have TB than U.S. born persons, but also much more likely to have been vaccinated with BCG).

T-SPOT.TB's diagnostic specificity has been reported as approximately 93%, with sensitivity lower but varying by exposure (Menzies et al 2007; Madhukar et al 2008; Nicol et al 2008). Currently it appears that T-SPOT.TB is more sensitive than TST (or even QuantiFERON-TB) and more specific than TST in BCG-vaccinated populations (Pai et al 2008), although QuantiFERON-TB Gold may have a higher specificity than T-SPOT.TB (Pai et al 2008).

Disagreements between TST and T-SPOT.TB is not uncommon and as of yet largely unexplained (Arend et al 2007; Menzies et al 2007). Dinnes et al (2007) indicated that tests that use the antigens used in T-SPOT.TB are better at accurately diagnosing LTBI than the TST. Diel et al (2008) showed excellent agreement between the T-SPOT.TB and QuantiFERON-TB Gold, and indicated the utility of IGRAs to detect LTBI cases in contact investigations.

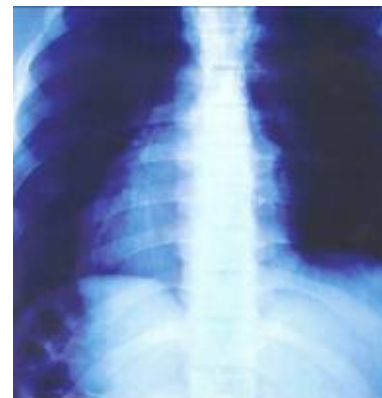
Particularly in an era of increasing multi-drug resistance, co-infection with HIV, and a high proportion of U.S. TB cases coming from foreign-born persons (who may have received the BCG vaccine), it is reassuring that we have new and powerful diagnostic tools such as T-SPOT.TB to help rapidly and accurately diagnose LTBI.

References on Page 6

Oxford Immunodiagnostic Laboratories (owned by Oxford Immunotec, Ltd. manufacturer of the T-SPOT®) is a National TB Testing Service that is dedicated to performing the T-SPOT®.TB test. Blood specimens (collected in a standard lithium heparin tube) are accepted Monday-Saturday and results are reported within 36-48hours. Packaging and shipping materials are provided to the customer. This new TB screening service is being offered to providers in the United States on a sliding scale based on volume; contact Client Services at 1-877-59 TBLAB or visit <http://tbttestingservices.com> for more information. NOTE: Heartland is providing this information as a service to its partners; this does not constitute an endorsement of the test or the testing service.

Heartland National TB Center provides a **Medical Consultation Line** that is staffed Monday to Friday, 8:00 AM to 5:00 PM (CST). After business hours, voice mail is available and will be returned in one business day:

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



Highlights continued from Page 5

References:

Anderson, P., M. Munk, J. Pollock, and T. Doherty. 2000. *Specific Immune-Based Diagnosis of Tuberculosis*. **Lancet** 2000; Volume 356:pp. 1099-1104.

Arend, S.M., S. F. T. Thijssen, E. M. S. Leyten, et al. *Comparison of Two Interferon- γ Assays and Tuberculin Skin Test for Tracing Tuberculosis Contacts*. **American Journal of Respiratory and Critical Care Medicine** 2007; Volume 175: pp. 618-627.

Behr, M., M. Wilson, W. Gill, et al. 1999. *Comparative Genomics of BCG Vaccines by Whole Genome DNA Microarray*. **Science** 1999; Volume 284: pp. 1520-1523.

Dinnes, J., J. Deeks, H. Kunst, A. Gibson, E. Cummins, N. Waugh, F. Drobniowski and A. Lalvani. 2007. *A Systematic Review of Rapid Diagnostic Tests for the Detection of Tuberculosis Infection*. **Health Technology Assessment** 2007; Volume 11(3). <http://www.hta.ac.uk/fullmono/mon1103.pdf>

Lalvani A. 2003. *Spotting Latent Infection: The Path to Better Tuberculosis Control*. **Thorax** 2003; Volume 58(11): pp. 916-918.

Menzies, D., M. Pai, G. Comstock. *Meta-analysis: New Tests for the Diagnosis of Latent Tuberculosis Infection: Areas of Uncertainty and Recommendations for Research*. **Annals of Internal Medicine** 2007; Volume 146: pp. 340-354.

Nicol et. al. 2008. *Comparison of T-SPOT.TB Assay and Tuberculin Skin Test for the Evaluation of Young Children at High Risk for Tuberculosis in a Community Setting*. **Pediatrics** 2008, Volume 123 (1): pp. 38-43.

Pai, M., A. Zwerling and D. Menzies. 2008. *T-cell Based Assays for the Diagnosis of Latent Tuberculosis Infection: An Update*. **Annals of Internal Medicine**, August 5, 2008; Volume 149(3): pp. 177-84.

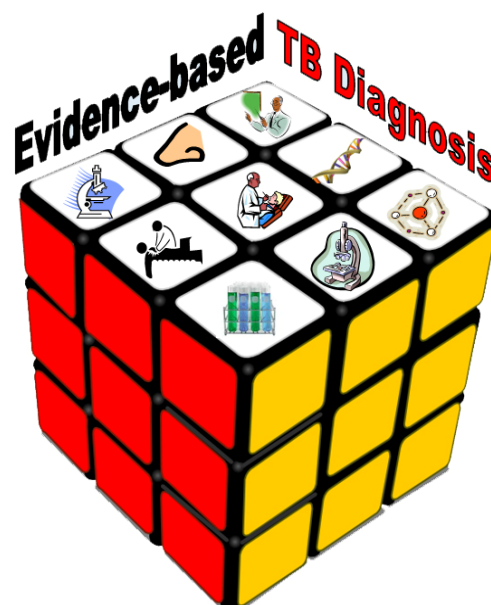
TBit

Evidence-based Tuberculosis Diagnosis

The *Stop TB Partnership*, a network of international organizations, governments, and individual donors, was established in 1998 to eliminate tuberculosis as a public health problem. The Partnership's New Diagnostic Working Group (NDWG), one of the core working groups within the partnership, was created in 2001 in order to facilitate the development of TB diagnostic tools. The NDWG introduces a new website resource called *Evidence-based Tuberculosis Diagnosis*, available at <http://www.tbevidence.org>.

The intent of the website is to provide a single source for information relating to TB diagnosis, including evidence synthesis, policies, guidelines, and research agendas. In addition, the website provides detailed guidance on conducting and reporting research on TB diagnostics (including systematic reviews). There are also tools for improving laboratory quality and developing guidelines using the GRADE approach ("Grading of Recommendations, Assessment, Development and Evaluation" provides a system for rating quality of evidence and strength of recommendations that is explicit, comprehensive, transparent, and pragmatic and is increasingly being adopted by organizations worldwide).

All information on <http://www.tbevidence.org> is provided without registration or fees as "open access." As a consolidated source of information dedicated to the critical evaluation and dissemination of evidence related to the diagnosis of tuberculosis, this service will undoubtedly be an valuable resource to those of us in the business of fighting TB.



News Updates from the TB Field

Addendum to the 2007 Technical Instructions Eases Overseas Adoptions

The 2007 CDC Technical Instructions (TI) required that “internationally adopted children over the age of two be tested for tuberculosis in the country of origin before a U.S. visa can be granted. If they test positive, they must be treated and determined not to be infectious before the CDC will allow them to travel to America.” These 2007 requirements were stalling overseas adoptions and creating hardships for new parents. Dr. Jeffrey Starke of the Children’s Tuberculosis Hospital in Houston was quoted as saying, “From not providing children any (TB) services, [the 2007 TI] swung over to the side of making rules that are in fact preventing children from coming into the States, children for whom it is completely safe.” Starke says. “In fact, it’s in their best interest that they be in the United States so they can be appropriately diagnosed and treated.” <http://kosu.org/2009/08/cdc-tuberculosis-rule-slows-international-adoption/>

On September 28, 2009, CDC released an addendum to the 2007 TI to ease TB screening and treatment requirements and facilitate adoptions, while still preventing and controlling TB transmission in the US. The TI addendum is below, and more information can be found at the Global Migration and Quarantine website <http://www.cdc.gov/ncidod/dq/panel-2007-addendum-ti-tb.htm>, including a helpful fact sheet for adopting parents and further information about TB screening and prevention in children.

2007 Technical Instructions for Tuberculosis Screening and Treatment Addendum: Instructions for Applicants 10 Years of Age or Younger September 28, 2009

CDC has developed the following addendum instructions for travel clearances for applicants 10 years of age or younger. The criteria described in these addendum Technical Instructions are based on physiologic aspects of childhood tuberculosis disease and children’s ability to transmit tuberculosis disease. These criteria do not apply to adults or children with tuberculosis disease associated with higher levels of transmissibility.

Applicants 10 years of age or younger who require sputum cultures, regardless of HIV infection status, may travel to the United States immediately after sputum smear analysis (while culture results are pending) if **none** of the following conditions exist:

- Sputum smears are positive for acid-fast bacilli (AFB). If the applicant could not provide sputum specimens and gastric aspirates were obtained, positive gastric aspirates for AFB do not prevent travel while culture results are pending.
- Chest radiograph findings include—
 - One or more cavities
 - Extensive disease (e.g., particularly if involving both upper lobes)
 - Respiratory symptoms include forceful and productive cough
 - Known contact with a person with multidrug-resistant tuberculosis (MDR TB) who was infectious at the time of contact

For applicants 10 years of age or younger who travel to the United States while results of cultures are pending, panel physicians should—

- Give the applicant a Class B1 TB, Pulmonary classification
- Document that culture results are pending on the Chest X-Ray Worksheet (DS 3024 [until September 30, 2009] or DS 3030 [beginning October 1, 2009])
- Forward culture results to DGMQ “Quality Assessment Program” via fax at 404-639-4441 so that DGMQ can forward the culture results to the receiving health departments

Panel physicians should provide the DS Forms based on the date of intended travel. If an applicant 10 years of age or younger will not travel until after culture results are to be reported (assuming they are negative), the panel physicians should wait until that time before completing the DS Forms. If the

Continued on Page 8

News Updates from the TB Field continued from Page 7

applicant who is 10 years of age or younger will travel while results of cultures are pending, the panel physician should provide DS Forms while cultures are pending.

Panel physicians should not delay treatment of applicants 10 years of age or younger for whom there is high suspicion of tuberculosis disease and who would benefit from therapy being started prior to departure to the United States. Consistent with other applicants started on tuberculosis treatment prior to travel, if therapy is started for an applicant 10 years of age or younger, the applicant is Class A for tuberculosis. A Class A waiver petition can be filed so that the waiver petition can be reviewed and the applicant can travel to the United States before completion of therapy. CDC supports the filing of waiver requests for young children with tuberculosis disease so that the waiver application may be reviewed and adjudicated in a timely manner.

Access the full Addendum at <http://www.cdc.gov/ncidod/dq/panel-2007-addendum-ti-tb.htm>.

2010 Training Calendar

Heartland National TB Center — Tentative 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.

<u>Date</u>	<u>Course</u>	<u>Location</u>
March	TB Nurse Case Management	Salina, Kansas
April 22-23	Contact Investigation	Albuquerque, NM
May	Expert Nurse Case Management	St. Paul, Minnesota
June 2-4	TB Intensive	Tyler, Texas
June	Tuberculosis on the College Campus	Texas
July	TB in Vulnerable Populations	Chicago, Illinois
September 15-16	Handling TB and HIV Co-Infection	Fargo, North Dakota
September	Contact Investigation	Arizona
October	Correctional TB	New Mexico
October 25-26	Four Corners TB and HIV Conference	Flagstaff, Arizona
November	Substance Abuse and TB	TBD
November	Handling Co-Infections in the TB Patient	San Antonio, Texas
December	TB Intensive	TCID, San Antonio

Webinars are planned on the following topics with dates to be determined:

- Handling Mental Illness in the TB Patient
- Maximizing Adherence in TB Patients
- Overview to the New RVCT Form
- Diagnosis of TB in the HIV Patient
- Latent TB Infection and Treatment Issues in the HIV Patient
- TB in the Foreign Born: Determinants that Increase Risk
- Tuberculosis on the College Campus: Unique Challenges

Plus additional courses to be developed on *Cohort Review* and *Program Evaluation*; dates and locations to be determined. Please check the Heartland website and future issues of the *TBeat* for course updates.