For our readers: A special thank you to those of you who continue to provide feedback for the new combined format for the TB Wire and the TB-Related News and Journal Items Weekly Update. Contents now include: Announcements, Washington Update, Resources/Trainings, Selected TB Reports, Journal Articles, Grants, Job Opportunities and Meetings/Conferences/Events. The Table of Contents will be linkable in the near future. This continues to be a work-in-progress and feedback to setkind@stopbusa.org is welcome and encouraged.

ANNOUNCEMENTS

WORLD TB DAY EVENTS: March 24th, 2013

FROM THE CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC):

Each year, World TB Day is recognized on March 24, often with a variety of activities leading up to the official day. For the second year, CDC joins the global Stop TB Partnership in adopting the slogan “Stop TB in my Lifetime” that goes with the theme of calling for a world free of tuberculosis (TB). In an effort to educate and raise awareness, CDC developed a variety of online resources to assist you in developing your own World TB Day messages and materials. You can also add your event to the World TB Day map. In addition, this year CDC is launching a TB Success Story Project to show prevention and control in action, with the first story to be released in March in both video and print formats. I hope you will join in these World TB Day activities and move us toward stopping TB in our lifetime.

NEW TOOL: CDC World TB Day Web buttons

Web buttons are graphic elements used to share messages by linking to a website for additional information. You can help spread the word about World TB Day by posting a CDC World TB Day web button on your organization’s website! Please click on this link to go to the CDC WTD web tools page http://www.cdc.gov/tb/events/WorldTBDay/WebResources.htm. Instructions on how to download the web buttons on to your website are on this page.

FROM NTCA: NEWS FLASH! 2013 TB Awareness Walk March 23, 2013 Grant Park, Atlanta, GA
Support from sponsors is critical to our success. We welcome donations to offset the cost of park permits, applications, website registration, t-shirts, event supplies, etc. A portion of donations will also go towards supporting TB patients' needs while in treatment. For a minimum $50 donation, you will receive a black and white image of your business or personal logo on back of the TB Walk t-shirt. You will also receive a free t-shirt. If you would like to sponsor the TB Awareness Walk, please contact the National TB Controllers Association www.tbcontrollers.org. Cash and/or in-kind donations are welcomed. We hope you will join in our efforts as well as walk with us on March 23, 2013! "Together we can make a difference and Stop TB in My Lifetime." (Stop TB Partnership Slogan). Register

FROM THE REGIONAL MEDICAL AND CONSULTATION TRAINING CENTERS (RTMCCs)

The New Jersey Medical School Global TB Institute

Annual TB Conference: Toward Zero TB Date: March 22, 2013 Location: Long Island City, NY
In commemoration of World TB Day, this conference will address TB prevention and control efforts in New York City to highlight progress in the fight against TB. Topics will include historical and current perspectives for addressing drug resistant TB, new modalities in the diagnosis and treatment of TB, ethical aspects of treating TB, updates in the management of TB-HIV co-infection, and taking steps to address TB among the foreign-born. Additional information can be found at: http://www.umdnj.edu/globaltb/training/trainingcalendar.html

New York City First Annual World TB Day Walk March 23, 2013 Location: New York City
The New York City Department of Health and Mental Hygiene along with NJMS Global Tuberculosis Institute, New York State Department of Health, Treatment Advocacy Group (TAG), RESULTS, and others, is sponsoring the New York City World TB Day Walk on Saturday, March 23rd. This event will unite a diverse group of community stakeholders to build partnerships, educate the community and raise awareness that TB is still a prominent health issue in NYC and around the world. To register and for more information please go to: http://tbwalk2013.eventbrite.com/

The Heartland TB Center

Stop TB In My Lifetime: 5k Fun Run/Walk March 22, 2013: San Antonio, TX.
Brochure and Registration Sheet available on the Class Information Sheet Click Here for Class Information

FROM RESULTS - the 2013 World TB Day editorial packet

FROM THE WHO STOP TB PARTNERSHIP

This year, our partners from around the world have organized an exciting line up of events. You can view a list of the global events that we have been alerted to on the Stop TB Partnership website. If you are organizing an event with an international focus that we haven’t featured, please let us know and we will add it. We also invite partners, particularly those working at the national and community level, to post details of their upcoming events on the www.worldtbday.org blog. If you haven’t already, you will need to complete a short registration process. We look forward to reading about your events and sharing them with our wider network.
Best wishes from the Stop TB Partnership Secretariat.

WASHINGTON UPDATE

Thanks to Nuala Moore for the following updated information. Nuala is the Senior Legislative Representative at the American Thoracic Society Washington Office.

Domestic Funding Update

On March 1, the deadline officially passed for the implementation of budget sequestration funding cuts. Federal agencies including the CDC are now developing plans for how to implement across the board funding cuts of 5 - 7%. Although the technical deadline has passed, Congress does have a few weeks to work out a new plan that could further delay sequestration cuts. The current continuing resolution funding government agencies for FY2013 runs out at the end of March so funding for the rest of 2013 also has to be resolved. It is likely there will be another continuation resolution which would keep funding at the current levels.

New members have been selected for the House Appropriations subcommittee that allocates TB funding for CDC. The new chair is Jack Kingston (R-Savannah, GA). The new democratic member is Congressman Honda from California. This is good news because of his demonstrated support of TB. Other new subcommittee members include Joyce of Ohio (Cleveland), Fleischman (Chattanooga, Tennessee) and Steve Womack (R-AR). In the Senate, Iowa Senator Harkin remains the Chair of the Labor-HHS Appropriations subcommittee. New members on the subcommittee are Merkley (D-OR), Tester (D-MT), Shaheen (D-NH) and Boozeman (R-AR).

The TB caucus now has 17 members. We urge Stop TB USA members to ask their House Representatives to join the Caucus in order to expand support for TB funding in the House. RESULTS held a conference call on March 9, with Rep. Gene Green (TX). Rep. Green is one of the originators of the TB Elimination Caucus in the House of Representatives, and he spoke about stemming the scourge of this disease as we approach World TB Day, March 24.

ATS and partners and USAID are planning many activities for World TB Day in March, including briefings in the House and Senate.

Regarding reauthorization, a work group is drafting an update to the current TB authorizing legislation - the Comprehensive TB Elimination Act that will be expiring. They aim to draft a bill that addresses all the emerging and ongoing issues (drug resistance, foreign born TB, etc.) and present to potential sponsors in 2013.

NEW RESOURCES

FROM RESULTS:

PEPFAR EVALUATION: The Institute of Medicine released a 678 page evaluation of PEPFAR (see here). Below are a few highlights that have been pulled out on TB-HIV. Page numbers correspond to the pages in the PDF.
Overall message: PEPFAR hasn’t been doing as well on TB-HIV as it has on other clinical HIV services. TB-HIV integration is not where it needs to be.

- "progress in this area has come more slowly than in other clinical services for HIV, and challenges persist in achieving adequate coverage" (pg. 216)
- In 2010, only 49% of PLHA in PEPFAR programs were screened for TB. This fell short of their goal of 68%. (Pg. 240)
- What is preventing better TB-HIV integration? (Pgs. 240-242)
- Separate donor funding streams for TB and HIV prevent integration. One interviewee explained "programs have a positive view of integration until they are competing for funding" (pg. 242)
- Lack of diagnostic capabilities and lab capacity
- Lack of integrated facilities; Loss to follow-up for co-infected patients in areas where programs are poorly linked
- Patient resistance to getting tested for HIV, including a desire among some patients to complete TB treatment before starting ART

Other notable issues: TB-HIV collaboration is good at the national and provincial level but variable at the district level; Despite listing IPT as ‘cost-saving’ and effective, PEPFAR has no indicators for IPT. (Pg. 236 and 238); Drug stock outs were reported as a major problem in many PEPFAR countries (pg. 412)

Recommendations: "The best practices for integrating services, such as HIV and TB, reproductive health, and primary care, need to be identified, evaluated, and scaled up." (Pg. 367); TB and HIV clinics should be co-located to prevent loss to follow-up; it works better than referral systems. (pg. 438)

SEQUESTRATION:

With sequestration looming in the US, ONE enlisted the help of Pulitzer Prize winning editorial cartoonist Matt Davies to make the point that the real winners of budget cuts are deadly diseases including AIDS, TB, and malaria. The cartoon was sent out through Matt’s syndication network of 400+ newspapers around the country, including top publications like US News, The Week, The Washington Post and Boston Globe. We’d love your help in sharing the link with your networks, if you’d be willing!
http://www.one.org/us/shareworthy/the-real-winner-of-the-sequestration/

Here are some other resources - relevant to both domestic and global TB:
http://tv.msnbc.com/2013/02/28/sequestration-will-be-hazardous-to-our-health/

"Sequestration will trigger $2.6 billion in annual cuts to the State Department and USAID, eliminating $600 million in humanitarian assistance and global health programs."


CDC Director Predicts Local Public Health Cuts Under Sequester: In related news, CDC Director Thomas Frieden on Wednesday said the agency would have "no alternative" but to decrease funding for state and local public health agencies if the sequestration begins, *CQ HealthBeat* reports. If allowed to take effect, CDC would face more than $350 million in funding cuts. At a hearing for the House Energy and Commerce Committee's Subcommittee on Oversight and Investigations, Frieden said that CDC would attempt to "limit the harm we have to do," in part by "focusing on efficiencies" and reducing administrative costs. However, given that more than two-thirds of CDC's funding goes to state and local health agencies, "there would be no alternative but to reduce funding there," he said (Norman, *CQ HealthBeat*, 2/13). Read more: [http://www.californiahealthline.org/articles/2013/2/14/boehner-house-gop-defer-to-senate-on-plan-to-avoid-sequester.aspx#ixzz2MITO8oLx](http://www.californiahealthline.org/articles/2013/2/14/boehner-house-gop-defer-to-senate-on-plan-to-avoid-sequester.aspx#ixzz2MITO8oLx)

**HIGHLIGHTED TB REPORTS**


*NOTE: Given the attention to this report, it is being printed in full along with the RESULTS statement*

In medical isolation in South Texas, 100 miles or so from Mexico's border, is a man who embodies one of U.S. health officials' greatest worries: He is the first person to cross and be held in detention while infected with one of the most severe types of drug-resistant tuberculosis known today. His three-month odyssey through 13 countries—from his homeland of Nepal through South Asia, Brazil, Mexico, and finally into Texas—shows the way in which dangerous new strains of the disease can migrate across the world unchecked.

Tuberculosis, an ancient, fatal airborne disease, has been treatable for decades with a cocktail of drugs. However, shoddy medical practices worldwide have enabled the bacteria to mutate and, in some cases, become all but untreatable. In recent months The Wall Street Journal has exposed widening TB drug resistance in hot spots like India, and shown that the U.S. is surprisingly unprepared for the growing global problem. Most U.S. cases of drug-resistant TB occur in people who were born abroad, according to the Centers for Disease Control and Prevention.

The Nepalese man detained at the U.S. border carries a particularly deadly strain—XDR, "extensively drug-resistant" TB. His TB is resistant to at least eight of the 15 or so standard drugs, according to a U.S. government description of the case reviewed by the Journal. His XDR strain has been seen only once before in the U.S., in another patient of Nepalese origin, according to the government description. The Nepalese patient was taken into custody by the U.S. Border Patrol in late November as he tried to cross the border illegally near
McAllen, Texas, according to Department of Homeland Security officials. The government declined to name him. He was transferred five days later to an Immigration and Customs Enforcement detention facility in Los Fresnos, Texas, and put into "medical isolation" with suspected tuberculosis, according to ICE. He has since been moved to another ICE detention facility, in Pearsall, Texas, with more medical staff, ICE said. He is the first XDR-case in ICE custody. 

Twelve Border Patrol agents were tested for the disease, but none contracted it from the patient, a Customs and Border Protection official said. Casual contact doesn't necessarily lead to infection, though it depends in part on how much time is spent in tight quarters with a patient, and how much the patient coughs, spreading bacteria into the air. It remains unclear whether other people in custody with the Nepalese detainee might have been infected. By the time the Border Patrol learned of his infection, other people detained with him would have been transferred elsewhere, the CBP official said. Detainees who are suspected of being ill are placed in cells by themselves.

Given how far and wide the patient ventured—he took a flight of more than eight hours to Brazil, and also traveled by car, boat and on foot—his case was reported to the World Health Organization as having potentially widespread public-health impact. Now, officials in the 13 countries the man visited along the way must try to track down thousands of people he likely came into contact with, to see if any were infected. That will be a challenge. "We will try to investigate where he was," said Martin Castellanos, director of Mexico's national TB program. But reconstructing his precise route through Mexico, or any country, will be difficult and perhaps impossible, he said. Dr. Castellanos says he was told the man spent time in a migrant community in Reynosa, across the border from Texas. But migrants typically linger there only "for a week, two weeks," he said, before moving on. "For sure, no one who was there in November is there now," he said.

The WHO's Stop TB Department said it is working with the CDC to inform affected countries about people who may have been exposed to the man. It is also trying to get more details on potentially infected people in those countries who have been reached by local authorities. DHS and the CDC declined to discuss details of the man's case, citing patient privacy. The man declined an interview request from the Journal made through ICE. He also declined to sign a privacy waiver allowing officials to release details of his treatment and his immigration case, ICE said.

XDR-TB is a particularly dangerous form of the disease that is resistant not only to the two most potent TB drugs, but also a handful of second-line drugs. It is rare in the U.S.: Only six cases were reported in 2011, according to the CDC. But it is a growing threat in countries including India and South Africa, where it has been found all over the country. The risk to the world is that the disease will migrate outward from these hot spots. Treatment options for XDR-TB are limited and can themselves be toxic.

ICE officials screen patients for TB—both regular and multidrug-resistant varieties—when they arrive at a detention facility. "We prepare for it and look for it," an ICE medical official said. They find one or two cases of multidrug-resistant TB a year, the official said. How long the man will remain in care in the U.S. is unclear. Treatment can last for years, but TB patients aren't infectious for the entire course of treatment. Detainee patients aren't normally kept until they are completely cured. However, infectious patients aren't deported on commercial flights or by any other means that "could be a danger to anyone," the official said.
One risk, of course, is that a patient won’t have enough drugs or medical expertise to complete the treatment he or she needs once deported to another country. TB strains can become increasingly drug-resistant if a patient’s treatment regimen is interrupted, even briefly. This is one way that drug-resistant TB has emerged over time. The Migrant Clinicians Network, an Austin, Texas, nongovernmental organization, helps arrange for deported patients to continue their treatment in their home countries. U.S. officials also often send patients home with a supply of the TB drugs they need, particularly to countries where supplies are uneven. Arranging care for drug-resistant patients is complicated, said Ed Zuroweste, the Migrant Clinicians Network’s chief medical officer. "XDR is hugely difficult," he said. "You really have to have experts to treat someone like that."

Nepal is known for innovative health programs, including some to fight TB. But like many countries, it has struggled with drug-resistant forms. Nepal reported more than 35,000 TB cases in 2011, and 2.9% of new and 12% of previously-treated TB cases are multidrug-resistant, according to WHO data.

STATEMENT FROM RESULTS: Statement on Wall Street Journal Article: XDR-TB Case in Texas Calls for Compassion, Global Action

March 2, 2013 — The case of a Nepalese man detained at the U.S. border in Texas suffering from an extensively-drug resistant (XDR-TB) strain of tuberculosis — featured in today’s Wall Street Journal — brings heightened clarity to the urgency of a renewed global response in the fight against tuberculosis (TB).

This story of a man, who traveled across several continents with a dangerous strain of TB, is not just a story about what happens on our border – it’s about a disease that has no borders and that necessitates a more aggressive global response. Many people think TB is a disease of the past. In fact, over two billion people are currently infected with the bacterium that causes TB – roughly one-third of the world’s population. One in ten people who carry the latent infection will become sick with active TB, which is one of the leading infectious killers of adults in the world.

Multi drug-resistant TB (MDR-TB) is a dangerous form of TB that is resistant to the two most powerful anti-TB drugs. Ineffective treatment of MDR-TB gives rise to extensively drug-resistant TB (XDR-TB). Resistant to a number of critical first- and second-line anti-TB drugs, XDR-TB is extremely difficult and costly to treat and has a high mortality rate. The case described in the Wall Street Journal demonstrates the value and importance of a strong, well-funded U.S. public health system that can detect outbreaks of deadly diseases and respond quickly. The Centers for Disease Control’s Division of TB Elimination has helped ensure overall TB rates in the U.S. continue to decline. However, this decline in total TB cases masks the fact that strains of TB are getting more dangerous and are more concentrated in populations that are difficult to reach.

We will never control and eliminate tuberculosis, however, if we only look inward. Before being taken into custody by the U.S. Border Patrol in Texas, the Nepalese man had reportedly visited 13 other countries, including Brazil, Mexico and several countries in South Asia.

TB anywhere is TB everywhere.

Increased U.S. support for the global TB response is essential to addressing TB within our own country, as this airborne infectious disease knows no borders, and our domestic epidemic increasingly reflects the global one.
We must support countries like Nepal to strengthen their own capacity to control TB and properly care for their TB patients. Without greater investment now to effectively treat TB in other countries, the epidemic of drug-resistant TB will continue to grow and threaten us all. If we don’t act now to address TB globally, it will cost us far more in lives and dollars in the long run. Treating drug-resistant TB can cost up to 100 times more than treating drug-sensitive TB. We must not forget the lessons from New York City, where an outbreak of multi drug-resistant TB in the late 1980s was estimated to cost over $U.S. 1 billion dollars.

Experts are available to discuss the intersection of the global and local TB fight, in response to this new drug-resistant case on our border: Joanne Carter - As Executive Director of RESULTS and RESULTS Educational Fund, a grassroots advocacy organization that generates the public and political will to end poverty in the US and abroad, Joanne has almost two decades of experience leading domestic and international campaigns to fight TB; Dr. Lee Reichman - Author of *Timebomb: The Global Epidemic of Multi-Drug Resistant Tuberculosis*, Dr. Reichman is the Executive Director of the New Jersey Medical School Global Tuberculosis Institute and has served as chair of several Center for Disease Control committees, including the National Coalition to Eliminate Tuberculosis; David Bryden - As a Stop TB Advocacy Officer at RESULTS, David Bryden coordinates U.S. advocacy on TB on behalf of the Stop TB Partnership and raises the visibility of TB as an issue of global concern. To connect with these sources, contact: Angela Pereira, Senior Communications Associate, ACTION Partnership – RESULTS Educational Fund, apereira@results.org 202-999-9545


In general and compared to other TB programs in Asia, the national Nepal TB control program is strong and Global Fund has supported the national program. However case detection has been stagnant for over last 10 years with a 70% case detection rate while the country would like to reach 82% by 2015 hence scale up is needed. In terms of MDR/TB there are significant increases in MDR cases which need to be diagnosed and treated: 251 MDR-TB cases have been detected (27% of 918 estimated MDR-TB cases among all notified TB cases); out of them, 7 were XDR-TB. Success rate among MDR-TB is 73% (cohort 2008-2009). Therefore the program is planning a major expansion of MDR/TB activities for next implementation phase (as of July 2013).

FROM PATH:

A Global Community of Practice for those working in Advocacy, Communication and Social Mobilization (ACSM) PATH and partners would like to invite you to join a global online forum to connect TB advocates around the world! Many working on the front lines of TB elimination find themselves working in isolation, lacking access to the latest information, and missing out on training and funding opportunities. A new global online ACSM Community of Practice aims to change that! We are a forum of civil society, advocates, trainees, trainers, national TB program staff, NGOs and others working in Advocacy, Communication and Social Mobilization (ACSM) to fight TB in countries around the world.
The goal is to connect, share experiences, provide access to opportunities for funding and training in ACSM and invite colleagues from around the world to take part in interactive discussions about important ACSM and TB issues. The site is also home to the Africa Coalition on TB's new website. The site is made possible with generous support from USAID and through input from ACSM implementers and partners throughout the world. The site is moderated by PATH in collaboration with the Stop TB Partnership, the International HIV/AIDS Alliance, the Africa Coalition on TB and Kwantu.

To join the site, please register here: [http://www.aidsportal.org/web/acsm](http://www.aidsportal.org/web/acsm). For more information, please contact acsm@path.org.

FROM NPIN:

**CALIFORNIA: "Persistent Strain of TB Claims Victims on L.A.'s Skid Row"** Los Angeles Times (02.21.13):: Anna Gorman, Andrew Blankstein (NOTE: there are over 22 related news articles/reports about this)

In Los Angeles (LA), health officials and rescue mission leaders have begun a new, coordinated attack to suppress a persistent outbreak of TB in downtown LA’s skid row. They are searching for more than 4,500 people who may have been exposed to the disease. This unique type of TB has infected 78 people and killed 11.

CDC has sent scientists to LA to help local health officials determine why the disease is spreading and how to stop it. Since 2007, 11 people have died. Sixty of the 78 cases were among homeless people who live in and around skid row. Scientists have recently linked the outbreak to a TB strain unique to LA, with a few isolated cases outside the area. Health workers are attempting to track down, test, and treat approximately 4,650 people who were probably exposed. Local and federal officials are particularly concerned because the cases are linked to one relatively small geographic area and one vulnerable population. If action is not taken, officials are concerned that the outbreak could spread beyond skid row.

Homeless people are especially at risk of getting TB and of being undiagnosed because they have limited access to health care. They have poor hygiene and nutrition and continuing contact with infected persons. They also live in overcrowded areas and are constantly moving among shelters, hospitals, and the streets. Many homeless persons also have mental health or substance abuse issues that can hinder treatment. The skid row TB strain can be treated with all anti-TB medications. Treatment lasts six to nine months.

The public health department recently disseminated an alert to clinics, urgent care centers, and emergency room doctors informing them about the investigation within the homeless community. According to the alert, most of the patients are men, and approximately 20 percent are also HIV-infected. Six of the eight patients who also had HIV have died. The health department issued new guidelines for shelters earlier this year about effectively screening and identifying patients at risk for TB, and recommended that shelters determine if incoming clients have been screened; if not, the shelters should refer them to health providers. The county suggests that all employees and volunteers be screened for TB because they are also at risk. As part of the ongoing investigation, the public health department recently sent a letter to shelters asking for information.
Researchers from the Universities of Edinburgh, Goettingen, Tuebingen, and Strasbourg have discovered how a natural antibiotic called dermcidin, produced by the skin when humans sweat, is a highly efficient germ-fighting tool. The scientists uncovered the atomic structure of the compound and were then able to determine what makes dermcidin such an efficient weapon against dangerous germs. When the skin is injured by a cut, scratch, or insect sting, antibiotic agents secreted in sweat glands kill the germs.

These natural substances, called antimicrobial peptides, are more effective than man-made antibiotics as germs are not able to quickly develop resistance against them. They attack the weak point in the germs, their cell walls, which cannot be changed quickly to resist the attack. Scientists already knew that dermcidin was activated in salty, slightly acidic sweat. This sweat then forms tiny channels perforating germs’ cell membranes, which are stabilized by charged zinc particles in sweat. The water and charged particles flow uncontrollably across the membrane, killing harmful bugs. The researchers used a combination of techniques to discover the atomic structure of the molecular channel and found it to be unusually long, permeable, and adaptable, representing a new class of membrane protein. The team found that dermcidin can adapt to widely variable types of membrane.

They believe this explains why dermcidin is such an efficient broad-spectrum antibiotic and can fight off bacteria and fungi simultaneously. Dermcidin is active against many well-known organisms such as Mycobacterium tuberculosis and Staphylococcus aureus. The researchers hope that this finding can contribute to developing a new class of antibiotics that can kill some of these dangerous germs. The full report, "Crystal Structure and Functional Mechanism of a Human Antimicrobial Membrane Channel," is published online ahead of print in the journal Proceedings of the National Academy of Sciences of the United States of America (February 20, 2013; doi:10.1073/pnas.1214739110).

India Health Minister Ghulam Nabi Azad said on March 1 that Indian research institutes are conducting trials to test new TB drugs, including drugs to treat currently drug-resistant TB. Drugs the institutes are testing include Delaminid, Bedaquiline, and PA-824, to treat both drug-sensitive and drug-resistant TB. The All India Institute of Medical Sciences, New Delhi, and the National Institute of Research in TB, Chennai, are taking part in global trials for the new TB drug Bedaquiline (TMC207).

Azad noted the Drug Controller General of India (DCGI) had not received an application granting permission for a US drug. Per India’s drug and cosmetic rules, DCGI must grant approval for any new drug to be introduced in the Indian market. Azad declared that, currently, the replacement of drugs used under the Revised National Tuberculosis Control Programme was not required, adding that patients with drug-resistant
TB are treated with a regimen containing drugs to which the TB bacillus was not resistant.

**NEW YORK: "UB Invention Leads to Discovery of Novel Pathway for TB Vaccine" University at Buffalo (03.01.13)**

Researchers have figured out how to use a University of Buffalo (UB)-patented mucosal adjuvant, LT-IIb, to dramatically strengthen TB vaccines delivered through the mucous membranes. The discovery, which clarified that the IL-17 pathway is the best route for TB vaccines, was part of a study focused on "bacterial proteins in the type II family of bacterial heat-labile enterotoxins" (HLT), according to Terry D. Connell, PhD, UB professor of microbiology and immunology. Connell explained that LT-IIb and similar type II adjuvants can boost the body’s ability either to make antibodies or to strengthen a cellular response, depending on which type II adjuvant is selected. The research team’s next step is to understand how LT-IIb works to create IL-17 immune response. The team can then "engineer" HLT to maximize the adjuvants’ capacity to stimulate immune response.

Mucosal adjuvant-based TB vaccines can be dried in powdered form and stored without refrigeration until needed. The vaccine powder then can be sterilized with boiling water, and used as a nasal spray. In contrast, most injectable vaccines must be refrigerated constantly to remain effective and safe, which is not always possible in developing countries. As drug-resistant strains of Mycobacterium tuberculosis appear, researchers are eager to find better ways to immunize people from TB, which kills more than 1.7 million people each year. Earlier TB vaccines targeted the IFN-γ and T helper 1 pathways, which are still essential pathways for curing TB infections. The full report, "Interleukin-17-dependent CXCL13 Mediates Mucosal Vaccine-induced Immunity Against Tuberculosis," was published online in the journal Mucosal Immunology (2013; doi: 10.1038/mi.2012.135).

**FIND TB RESOURCES** Highlight of the Month

*You Can Prevent Tuberculosis*, from the Southeastern National TB Center.

*Assessing Tuberculosis Under-Reporting Through Inventory Studies*, from the World Health Organization.

**FROM TB CARE 1**

Current TB CARE 1 organization publications and links to download them:

[Download Here]

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**JOURNAL ARTICLES**

(February 23 – March 8, 2013)


Indirect supportive evidence for diagnosis of tuberculosis-related uveitis: from the tuberculin skin test to the

AIDS Res Hum Retroviruses. 2013 Feb 25. [Epub ahead of print]

Tuberculosis After 1 Year of Combination Antiretroviral Therapy in Nigeria: A Retrospective Cohort Study. Akanbi MO, Achenbach CJ, Feinglass J, Taiwo B, Onu A, Pho MT, Agbaji O, Kanki P, Murphy RL.

Am J Occup Ther. 2013 Mar;67(2)

Philip king brown and arequipa sanatorium: early occupational therapy as medical and social experiment. Harley L, Schwartz KB.


Is passive diagnosis enough?: the impact of subclinical disease on diagnostic strategies for tuberculosis. Dowdy DW, Basu S, Andrews JR.


BMC Infect Dis. 2013 Feb 27;13(1):110. [Epub ahead of print]


Rationale and design of a randomized controlled trial of the effect of retinol and vitamin D supplementation on treatment in active pulmonary tuberculosis patients with diabetes. Wang Q, Ma A, Bygbjerg IC, Han X, Liu Y, Zhao S, Cai J.


Haemophagocytic syndrome with disseminated intravascular coagulation associated with tuberculosis. Cherif E, Bel Feki N, Ben Hassine L, Khalfallah N.

Tuberculous myopericarditis: a rare presentation in an immunocompetent host. Desai N, Desai S, Chaddha U, Gable B.

BMJ Case Rep. 2013 Feb 28;2013

Diversities in presentations of extrapulmonary tuberculosis. Neelakantan S, Nair PP, Emmanuel RV, Agrawal K.
Mammary tuberculosis in the young: A case report and literature review. Green M, Millar E, Merai H, O'Shea M, Dedicoat M, Ingle H.

Model-based evaluation of the pharmacokinetic differences between adults and children for lopinavir and ritonavir in combination with rifampicin. Zhang C, Denti P, Decloedt EH, Ren Y, Karlsson MO, McIlleron H.


Serpiginous-like choroiditis as a marker for tuberculosis in a non-endemic area. Gan WL, Jones NP.

Evolution of cutaneous tuberculosis over the past 30 years in a tertiary hospital on the European Mediterranean coast. Marcoval J, Alcaide F.


Antituberculosis drug resistance acquired during treatment: an analysis of cases reported in California, 1994-2006. Porco TC, Oh P, Flood JM

Infectious disease burden and vaccination needs among asylees versus refugees, district of Columbia. Chai SJ, Davies-Cole J, Cookson ST.

Differential findings regarding molecular epidemiology of tuberculosis between two consecutive periods in the context of steady increase of immigration. Iñigo J, García de Viedma D, Arce A, Palenque E, Herranz M, Rodríguez E, Ruiz-Serrano MJ, Bouza E, Chaves F.

Pulmonary Tuberculosis Outbreak in a Pediatric Population. Yousef N, Hasan RA, Abuhammour W.

An evaluation of the safety and immunogenicity of a candidate TB vaccine, MVA85A, delivered by aerosol to


EID: March 2013 19 (3)

Tuberculosis and HIV Co-infection, California, USA, 1993–2008
J.Z. Metcalfe et al.

Treatment Outcomes for Extensively Drug-Resistant Tuberculosis and HIV Co-infection
M.R. O'Donnell et al.

Emergence and Spread of Extensively and Totally Drug-Resistant Tuberculosis, South Africa
M. Klopper et al.

Mycobacterial Lineages Causing Pulmonary and Extrapulmonary Tuberculosis, Ethiopia R. Firdessa et al.


Tuberculosis Outbreak in a Primary School, Milan, Italy M. Faccini et al.

Prioritizing Tuberculosis Clusters by Genotype for Public Health Action, Washington
S. Lindquist et al.

Environ Pollut. 2013 Feb 28. [Epub ahead of print]

Risk of tuberculosis in high-rise and high density dwellings: An exploratory spatial analysis. Lai PC, Low CT, Tse WS, Tsui CK, Lee H, Hui PK.

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Advances in tuberculosis 2011-2012. Zar HJ, Udwadia ZF.


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Sugar cane manufacturing is associated with tuberculosis in an indigenous population in Brazil. Sacchi FP, Croda MG, Estevan AO, Ko Al, Croda J.

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Screening of patients with diabetes mellitus for tuberculosis in India. India Diabetes Mellitus - Tuberculosis Study Group.


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COURSES

FROM THE RTMCCs:

The Southeast National TB Center (SNTC)

Webinar: Tuberculosis & Transplantation - Diagnosis & Management of Donor Derived Infection

Date: 3/18/2013 Time: 10:00 AM - 12:00 PM Eastern Location: SNTC via webinar - available on SNTC’s website: http://sntc.medicine.ufl.edu/Webinars.aspx

This webinar will include an overview of the organ procurement process and the current donor screening techniques. It will outline the current status of TB in transplantation and review the historical experience with donor-derived tuberculosis. Diagnosis and management of donor-derived tuberculosis will be covered.

The New Jersey Medical School Global TB Institute
Medical Update: TB Technical Instructions for Civil Surgeons - Implications for Health Departments  
Date: April 3, 2013 Location: Web-based

This webinar will provide an overview of the TB Technical Instructions for US civil surgeons and discuss their implications for health department providers. Case presentations will be used to explore strategies for collaboration as well as appropriate referral and follow-up of adjustment of status applicants. Additional information can be found at: http://www.umdnj.edu/globaltb/training/trainingcalendar.html

TB Intensive Workshop Date: April 23-26, 2013 Location: Newark, NJ

This workshop for clinicians provides comprehensive information on the principles and application of TB diagnosis and treatment, as well as the management of TB in special populations. Topics will include transmission and pathogenesis, diagnosis and treatment, drug resistance, TB-HIV co-infection, TB in children and adolescents, and key aspects of patient management. Lectures, interactive discussions, small group work and case studies will be used to enhance TB knowledge and clinical practice. Additional information can be found at: http://www.umdnj.edu/globaltb/training/trainingcalendar.html

The Heartland TB Center

Course Schedule Click Here for Class Information

TB Update

Date: March 22, 2013 Location: San Antonio, TX.

The goal of this training is to enhance the expertise of health care staff through providing updates in TB research, treatment regimen, laboratory, and ethical considerations. Using interactive lectures participants will be able to: identify TB and substance abuse co-morbidities that may impact the management and treatment of TB infection and disease, describe the Interferon Gamma Release Assay (IGRA), discuss the newest findings from TB research, review and discuss recommendations and options for treating latent TB infection (LTBI), describe molecular tests available for drug resistant TB and their use, and discuss the impact of TB in the life of persons with TB within the community.

Curry International Tuberculosis Center

The Curry International Tuberculosis Center is pleased to announce that our 2013 Training Schedule is now available, please visit: http://www.currytbcenter.ucsf.edu/training/schedule_2013.cfm.

Tuberculosis Contact Investigation Interviewing Skills Intensive April 30 – May 3, 2013
Oakland, California

The Curry International Tuberculosis Center will be conducting a 4-day Tuberculosis Contact Investigation Interviewing Skills Intensive. This training is designed for health professionals responsible for conducting tuberculosis contact investigation interviews. This training will include didactic lectures and small group activities focused on skill building for improved tuberculosis interviewing skills. Individuals must participate in
all four days of the training. This training is approved for up to 26.25 nursing continuing education contact hours. No prorated credits are available.

For a complete training description and application information, please visit:

http://www.currytbcenter.ucsf.edu/training/tbciii.cfm

You can submit your application online by using the following website:

http://www.currytbcenter.ucsf.edu/training/tbciii_app.cfm

PLEASE NOTE: The Curry International Tuberculosis Center prioritizes learners from the western region of the United States. Please visit our website for a list of the western region jurisdictions.

FROM THE MIGRANT CLINICIANS NETWORK

The Migrant Clinicians Network has designed the Clinician Orientation to Migration Health for new and seasoned clinicians as well as others providing direct service to mobile patients. The orientation is divided into a series of seven webinars which cover a wide breadth of knowledge and skills to help clinicians and others provide quality care to one of the most difficult to reach populations in the United States.

The first webinar took place on February 13, 2013; view the archived version here. The next one is March 13th titled Cultural Proficiency in the Context of Migration Health. You can attend one webinar or all seven. Each webinar is accredited for 1 hour of continuing nursing education or 1 hour of medical education. Complete all seven modules and you will receive an additional Certificate of Expertise in Migration Health

REGISTER FOR ALL 7 WEBINARS HERE

FROM TB CARE II

Online Training Course: Drug-Resistant Tuberculosis Program Management - March 12-28, 2013

The DR-TB Training Network (www.drtbnetwork.org) is a USAID-funded website of the TB CARE II project. The DR-TB Training Network will host an online training course on Drug-Resistant TB Program Management in English from March 12-28, 2013 on Tuesdays and Thursdays at 9:00 a.m. EDT; note the lecture on March 28th starts at 8:00 a.m. EDT. The webinars are delivered by TB experts from Harvard Medical School, Brigham & Women's Hospital, Partners In Health, and KNCV Tuberculosis Foundation. We encourage you to share this information with your networks and frontline healthcare workers in high-burden TB settings. Register at: https://www.drtbnetwork.org/webinars.

FROM NATIONAL JEWISH MEDICAL AND RESEARCH CENTER:

The 50th Annual Denver TB Course
April 10-13, 2013 and October 9-12, 2013 Denver, Colorado

The purpose of this course is to present this body of knowledge to general internists, public health workers, infectious diseases and chest specialists, registered nurses, and other health care providers who will be
responsible for the management and care of patients with tuberculosis. For more information and to register, please call 800.844.2305 or visit www.njhealth.org/TBCourse

FROM THE UNION:

TREAT TB designs online learning programme for operational research. The Union’s TREAT TB initiative has created an E-tool for Operational Research to help meet the urgent need for health professionals with the skills to conduct this type of research independently. Read more. . .

The Union’s International Management Development Programme 2013 Courses: To register for any of these courses, visit www.union-imdp.org or email imdp@theunion.org to receive more information. Course fee for all courses includes lodging, breakfast, lunch, coffee and tea breaks, and course materials.

Influencing, Networking and Partnership 23 – 27 September, 2013 Chicago

Creating partnerships and networks is an important element to the success of a TB program. Participants in this course will learn how relationship building and developing strong partnerships can boost health program results. Key topics the course addresses: Developing useful networks among health organizations; Creating partnerships to expand a project’s reach; Building group consensus to achieve greater results Balancing relationships to create high-performing teams.

GRANTS

From CDC National Prevention Information Network’s (NPIN) Funding Database

Fund Number: 4616 - Fund Title: Research In Latent Tuberculosis Infection (LTBI) in the Setting of HIV Co-Infection (R01)

The purpose of this FOA is to stimulate research about the role of microbiologic adaptive mechanisms, host immunologic factors, and their interactions in the development, maintenance, and re-activation of latent tuberculosis infections (LTBI) with a focus on HIV co-infection. Mechanisms of TB latency are poorly understood. LTBI occurs when Mycobacterium tuberculosis (MTB) persists in the host without signs of active disease, yet maintains the potential to cause active tuberculosis. Web Page: grants.nih.gov/grants/guide/pa-files/PAR-13-061.html

Application Due Date: 07/25/2013

JOB POSTINGS/POSITION OPPORTUNITIES

FROM THE WHO/STOP TB PARTNERSHIP

The WHO and the Stop TB Partnership are seeking applications to fill two vacancies on the Global Green Light Committee (gGLC) Call for applications
The World Health Organization and the Stop TB Partnership are announcing a call for applications for two members to serve on the Global GLC Committee (gGLC) in 2013-2015. A global strategic committee (the "gGLC") was established in 2011 as an advisory committee to WHO, with a dual role of advising WHO and partners.

Applicants are being sought for two members to serve on the gGLC for the term April 2013 – March 2015. Applicants should note that: 1) Members are to be appointed onto the gGLC in their individual capacity; and 2) Members will be selected to ensure that the two respective relevant technical areas are represented, and the perspectives of a broad range of constituencies and regions continue to be represented on the committee.

Two members are being sought to represent the following technical areas and constituencies:

**Member 1. Technical areas (focused on drug-resistant TB)** Programmatic management of DR-TB care
Constituencies Implementing partners Countries - NTP or other governmental representatives from a high burden country

**Member 2. Technical areas (focused on drug-resistant TB)** Drug management Constituencies Technical partners; Implementing partners - International non-governmental organizations

**Closing date of applications has been extended to close of business on March 18, 2013**

**FROM UNITAID:**

The NGOs Delegation to the UNITAID Board is seeking applications for a new Alternate Board Member (unpaid position).

Application deadline: 12:00 noon GMT, Friday 20 March 2013. Interviews expected between 15 and 27 April 2013 (TBC) Please send completed applications to the UNITAID Civil Society Delegations Liaison Officer, Leila Zadeh: LZadeh@oxfam.org.uk Full terms of reference for the role, outline of the application process, background information and an application form are attached or available by sending an email to LZadeh@oxfam.org.uk.

The Position: The NGOs delegation to the Executive Board of UNITAID, representing NGOs involved in the global fight against HIV, TB and malaria, is looking to appoint a new Alternate Board Member. The Alternate will work with the NGOs Board Member, Civil Society Delegations Liaison Officer and the Civil Society Delegations’ Contact Group to represent the whole constituency of NGOs working on the three diseases. Applicants must be affiliated to an NGO working to combat at least one of the three diseases, whether as an employee, trustee, volunteer, consultant etc., and must be willing to commit 15-25% of their working time to the position. Applicants must have the support of their organisation for the role and time commitment. The term of service for the NGOs Alternate Board Member is 2 years (June 2013-June 2015), after which, subject to satisfactory performance, they may be offered the position of Board Member for a further two years.

The new Alternate Board Member should be available to attend the UNITAID Board meeting in Geneva on 6-7
June 2013 and the Civil Society Delegations pre-meeting from 3 to 5 June. A handover is planned with the current NGOs Board Member and Alternate during this time. Please note this is an unpaid position but travel costs will be covered by the UNITAID secretariat or the grant to the Civil Society Delegations. Some support towards telephone and other office costs can also be provided.

For more information on UNITAID, please see www.unitaid.eu.

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MEETINGS, CONFERENCES AND EVENTS

EVENTS:

NATIONAL PUBLIC HEALTH WEEK : April 1st, 2013 http://www.nphw.org/nphw09/default.htm

Want to celebrate National Public Health Week? Here’s how

This year’s NPHW will take place April 1-5. Through the theme, "Public Health is ROI: Save Lives, Save Money," NPHW 2013 will recognize the tremendous value of public health in our lives – at home, in schools, at the workplace, on the move and in the community.

MEETINGS/CONFERENCES ( Alphabetically listed by sponsoring organization)

AMERICAN COLLEGE HEALTH ASSOCIATION (ACHA):

ACHA 2013 Annual Meeting: May 28 - June 1, 2013, Boston, Ma

Five days of networking, collaboration, and continuing education! This year we honor the spirit of service and compassion that college health professionals have shown in their dedication to serving college students and their campus communities

AMERICAN PUBLIC HEALTH ASSOCIATION (APHA):

141st APHA Annual Meeting: November 2 - November 6, 2013,Boston, Ma

The APHA Annual Meeting & Exposition is the oldest and largest gathering of public health professionals in the world, attracting more than 13,000 national and international physicians, administrators, nurses, educators, researchers, epidemiologists, and related health specialists. APHA's meeting program addresses current and emerging health science, policy, and practice issues in an effort to prevent disease and promote health. APHA has a world of public health in store for you. Review the Program-at-a-Glance (PDF) to get a quick visual image of the APHA 2013 Annual Meeting Schedule. The theme of the meeting is: Think Global, Act Local: Best Practices Around the World. For more information about each session type visit www.apha.org/meetings/sessions/ .

AMERICAN THORACIC SOCIETY (ATS):

This conference provides that will offer the latest information on clinical, basic and translational science in pulmonary, critical care and sleep medicine. With more than 500 sessions, 800 speakers, and 5,300 original research abstracts and case reports, ATS 2013 invites attendees to learn about an exciting array of topics in adult and pediatric pulmonary, critical care, and sleep medicine, or to concentrate on a specific clinical or scientific interest.

Full ATS 2013 program information and registration for Postgraduate Courses, Sunrise and Meet the Professor seminars, the Thematic Seminar Series, and workshops is available at conference.thoracic.org/2013. For more information about the International Conference, please click here.

You may also email conference@thoracic.org. If you experience a technical problem while registering, please call 866-635-3585 or email thoracic@xpressreg.net.

Call for Abstracts for the TB Public Health Poster Forum at the ATS meeting

As in past years, the conference features a CDC/Stop TB USA-sponsored Public Health Poster Forum on Sunday, May 19th from 7 p.m. to 9 p.m. The poster session will focus on innovative techniques that help meet the challenges of TB prevention, control, and elimination in the United States. The poster presentations are excellent, the discussions lively, and the session provides a great opportunity to meet others involved in TB control.

Please consider developing an abstract for poster presentation on a significant or innovative aspect of your TB control program for this 2013 poster forum. Topics include: 1) Updated policies/procedures and successful activities for conducting TB-related contact investigations, including successful treatment completion in contacts identified with LTBI; 2) The use of programmatic and epidemiologic data to develop and update policies and procedures; 3) Successful activities for the evaluation and treatment of immigrants and refugees; 4) Reports of TB outbreaks, including surveillance and program activities related to detection and control of outbreaks, MDR TB outbreaks, and the development and use of outbreak response plans; 5) Successful activities or interventions to prevent and eliminate TB in high-risk populations, such as African-American communities, foreign-born persons, homeless persons, or populations along the U.S./Mexico border; 6) Innovative and successful interventions to increase adherence and completion of treatment for TB disease and LTBI; 7) Successful activities or interventions to prevent and eliminate TB in persons with HIV-infection; 8) Successful activities or interventions to prevent and eliminate TB in persons incarcerated in correctional facilities; 9) Successful training and education materials, courses, or sessions for TB program staff, public and private healthcare providers, or successful educational efforts developed for patients with LTBI or disease; 10) Successful efforts to comprehensively evaluate and improve TB prevention and control programs; and 11) Successful implementation of the use of new diagnostic tests for LTBI or TB disease.

This year we are again asking for electronic submission of the poster abstracts. Since this session is sponsored by CDC, rather than the ATS, these abstracts will not be published in the ATS conference book. However, all abstracts will be printed and handed out at the session. Instructions for abstract submission, related forms, and a sample abstract are Found Here. Please use the attached electronic form to describe your proposed poster. Abstracts should be submitted to Dr. Sundari Mase at fyy0@cdc.gov or Dr. Christine Ho at...
gtb9@cdc.gov. The deadline for receipt of abstracts is March 15, 2013. We will make notifications regarding acceptance of abstracts by April 1, 2013.

ASSOCIATION OF PRACTITIONERS IN INFECTION CONTROL (APIC):

40th Advancing infection prevention education Annual conference
June 7-10, 2013 Fort Lauderdale, Florida annual@apic.org

ASSOCIATION OF PUBLIC HEALTH LABORATORIES (APHL):


ASSOCIATION OF STATE AND TERRITORIAL HEALTH OFFICERS (ASTHO):


CALIFORNIA TB CONTROLLERS ASSOCIATION (CTCA):

2013 CTCA Conference; May 29-31, 2013, San Jose, California

Our 47th CTCA Educational Conference, Blazing New Trails in TB Control: Combatting Drug Resistance and Putting Molecular Diagnostics into Practice will be held at the DoubleTree by Hilton in San Jose. A Curry International Tuberculosis Resource Center Training will follow on May 31st. Registration will open soon on ctca.org.

HEALTH CARE FOR THE HOMELESS CLINICIANS NETWORK:

2013 National Health Care for the Homeless Conference & Policy Symposium
March 14-16, 2013, Washington, D.C.,

Registration Conference Schedule and Workshop Descriptions


The Eighth National Conference on Quality Health Care for Culturally Diverse Populations: Achieving Equity in an Era of Innovation and Health System Transformation: March 11 - 14, 2013, Oakland, CA

Health reform and systems change have the potential to greatly improve the health and lives of diverse patients and communities. This conference will explore how changes in policy, financing, information technology, clinical practice and systems design can improve health care delivery -- and how these transformations must accommodate the unique needs posed by cultural and linguistic diversity. Descriptions of preconference sessions and a draft conference agenda are available now on the conference website: www.diversityrx.org/2013-conference-agenda
NATIONAL ASSOCIATION OF COUNTY AND CITY HEALTH OFFICERS (NACCHO):

NACCHO Annual 2013, July 1-12th 2013, Dallas, TX. [REGISTER NOW](#) or [Download Individual Registration Form](#)

NATIONAL TB CONTROLLERS ASSOCIATION (NTCA)


Conference agenda and hotel information will be released in early March. For questions regarding the conference, please contact: Donna Wegener, NTCA Executive Director at dhwegener@tbcontrollers.org or Eva Forest eforest@tbcontrollers.org 678 503-0503 or Sherry Brown sbrown@tbcontrollers.org

A "Call for Abstracts" and abstract instructions can be Found Here: [Call for Abstracts](#), [Instructions](#). The deadline for receipt of abstracts is Monday, April 15, 2013.

RESULTS:

International Conference 2013: July 20-23, 2013, Crystal City, Arlington, Virginia

Professor Muhammad Yunus to be Keynote Speaker [REGISTRATION FOR THE 2013 RESULTS INTERNATIONAL CONFERENCE IS OPEN! Learn more on our website.](http://www.results.org/events/IC_2013/)

THE UNION:

44th World Conference on Lung Health: October 30 - November 3, 2013, Paris, France

The Union welcomes all authors to submit their abstracts. The 2013 theme is "Shared air, safe air?" [Paris 2013 - Download Brochure](#) The 44th Union World Conference on Lung Health is a 5 day conference covering the latest developments, opportunities and challenges in tuberculosis, HIV, tobacco control, lung health and non-communicable diseases.

Go to [the website](#) for details.

VIROLOGY EDUCATION

6th International workshop on Clinical Pharmacology of TB Drugs 9 September 2013, Denver CO, USA

The aim of this abstract driven workshop is to make a significant contribution to the optimization of TB treatment by bringing experts together to present and discuss the latest important scientific findings in the TB clinical Pharmacology field. Ample time is reserved to discuss and translate scientific and regulatory issues to further optimize TB treatment. The format will be a one-day workshop with invited lectures, abstract presentations and sufficient Q&A time to guarantee an intimate and highly interactive event.

We encourage you to submit your data for an oral or poster presentation on the following topics: Pharmacokinetics and Pharmacodynamics of Approved TB Drugs; Pharmacokinetics and Pharmacodynamics of New TB Drugs; Pharmacokinetic- & Pharmacodynamics modeling; Drug-drug and drug-disease state
interactions; TB treatment in special populations; New Drug Development MethodS

The **Workshop Materials** from the edition of this workshop are available on [our website](#).

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*StopTBUSA was formerly known as the U.S. National Coalition for Elimination of Tuberculosis (NCET). Please pass this information on to your colleagues who are interested in TB elimination.*

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