

**Update on TLDA Cards Meeting**  
On January 29 we reported progress on TaqMan® Low Denisty Array (TLDA) card validation to the CDC scientists whose assays are a part of this multiple pathogen detection collaborative project. TLDA cards were customized to include singleplex real-time PCR assays for rapid identification of 13 viruses and eight bacteria known to cause respiratory disease.

The assays are pre-attached to the card itself, so sample preparation is very simple. It includes extraction of total nucleic acids from clinical specimens, mixing with the master mix and loading onto a single well on the card. Results for 21 respiratory pathogens on 14 clinical specimens can be available in about four hours after receiving the specimens.

Extensive analysis on almost 300 clinical specimens suggests that the respiratory panel TLDA card is a powerful and easy-to-use tool for identification of respiratory pathogens. This format will prove valuable in outbreak investigations where the etiology of respiratory disease is unknown, especially when multiple pathogens are suspected.

The annual **Active Bacterial Core surveillance (ABCs) Steering Committee Meeting** was held in Atlanta, GA on March 9-10. The ABCs Steering Committee meeting is the primary forum in which the ABCs Steering Committee—composed of principal investigators from the ABCs sites and several external consultants—gather with CDC collaborators to review the status of ongoing projects and set directions for the upcoming year.

At this year's meeting they discussed the progress of the American Recovery and Reinvestment Act-funded vaccine effectiveness studies of the meningococcal conjugate vaccine and the 13-valent pneumococcal conjugate vaccine—in addition to a myriad of other ongoing projects springing from the surveillance of the six ABCs pathogens: *Neisseria meningitidis*, *Streptococcus pneumoniae*, MRSA, groups A and B *Streptococcus*, and *Haemophilus influenzae*.

The **ANISA (Aetiology of Neonatal Sepsis in South Asia)** meeting was held in Atlanta, GA on March 10-11. This meeting

...continued

(MEETINGS CONTINUED)

was held to bring together experts in laboratory diagnostics to guide decisions on laboratory methods for the project. The objective of this meeting was to finalize as many decisions as possible and map out clear next steps for the ANISA methods development phase.

DBD staff attended, exhibited and presented at the **National Immunization Conference** (April 19-22) and the **Epidemic Intelligence Service Conference** (April 19-23). Staff will also be presenting at the **110th General Meeting of the American Society for Microbiology** (May 23-27) among other spring meetings.

**Abstract Deadlines in 2010**

ASTMH Abstract: Due May 4

Conference November 3-7 in Atlanta, GA

ICAAC Abstract: Due May 7

Conference September 12-15 in Boston, MA

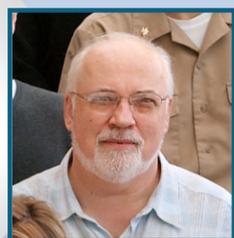
IDSA Abstract: Due May 19

Conference October 21-24 in Vancouver, Canada

ICEID Late Breaker Abstract: Due May 26

Conference July 11-14 in Atlanta, GA

**2010 Recipient of the Sigma Xi Walter R. Dowdle Award for Achievement in Public Health Science**



**Leonard Mayer, Chief of the Meningitis Laboratory, has been selected as the 2010 recipient of the Sigma Xi Walter R. Dowdle Award for Achievement in Public Health Science.**

*Mayer was selected for this award in recognition of his leadership, contributions and impact on global health in various arenas and in appreciation for his mentoring skills that have guided the paths of many others towards careers in public health.*

**FEATURED PUBLICATIONS**

CDC. Invasive pneumococcal disease in children aged <5 years caused by serotypes in a 13-valent pneumococcal conjugate vaccine — United States, 2007. MMWR 2010;59(09):253-7.

CDC. Licensure of a 13-valent pneumococcal conjugate vaccine (Prevnar 13) and updated ACIP recommendations for use among infants and young children. MMWR 2010;59(09):258-61.

CDC. Licensure of meningococcal conjugate vaccine (Menveo) and guidance for use --- Advisory Committee for Immunization Practices (ACIP), 2010. MMWR 2010;59(09):273.

Cohn AC, MacNeil JR, Harrison LH, et al. Changes in *Neisseria meningitidis* disease epidemiology in the United States, 1998-2007: implications for prevention of meningococcal disease. Clin Infect Dis. 2010;50:184-91.

Hall AJ, Cassiday PK, Bernard KA, et al. Novel *Corynebacterium diphtheriae* in domestic cats. Emerg Infect Dis. 2010;16:688-91.

Lu PJ, Jain N, Cohn AC. Meningococcal conjugate vaccination among adolescents aged 13-17 years, United States, 2007. Vaccine. Epub ahead of print. December 2009. doi:10.1016/j.vaccine.2009.12.032.

Mangtani P, Mulholland K, Madhi SA, et al. *Haemophilus influenzae* type b disease in HIV-infected children: a review of the disease epidemiology and effectiveness of Hib conjugate vaccines. Vaccine. 2010;28:1677-83.

Park SY, Van Beneden CA, Pilishvili T, et al. Invasive pneumococcal infections among vaccinated children in the United States. J Pediatr. 2010;156:478-83.



Pilishvili T, Lexau C, Farley MM, et al. Sustained reductions in invasive pneumococcal disease in the era of conjugate vaccine. J Infect Dis. 2010;201:32-41.

Shearer JC, Stack ML, Richmond MR, et al. Accelerating policy decisions to adopt *Haemophilus influenzae* type b vaccine: a global, multivariable analysis. PLoS Med. 2010;7:e1000249.

Shetty S, Cohen AL, Edmond K, et al. A systematic review and critical evaluation of invasive *Haemophilus influenzae* type b disease burden studies in Asia from the last decade: lessons learned for invasive bacterial disease surveillance. Pediatr Infect Dis J. Epub ahead of print. February 2010. doi: 10.1097/INF.0b013e3181d3ce19.

**AWARD**

**DBD's Meningitis and Vaccine Preventable Diseases Branch** was honored at the 2010 National Meningitis Association (NMA) Gala, Give Kids a Shot! The April 26 event was held at the New York Athletic Club in New York City. Last year's Gala, which was NMA's first, was attended by over 320 people and raised almost \$300,000.

Photo: Members of MVPDB's meningitis team

**DIRECTOR'S SPOTLIGHT**

regards from *Rana...*

Dear colleagues,

For this first Bulletin in 2010, we chose to highlight some of our recent global programs. This Division has been actively involved in multiple international activities for many years, and its efforts to better understand the epidemiology of bacterial meningitis and pneumonia globally and to strengthen global capacity for diagnosis of these diseases are well recognized. Over the last few years, the scope of our international activities has expanded significantly, as we have become more heavily involved in efforts to accelerate new vaccine introduction in developing countries. For many years, DBD has hosted WHO Collaborating Centers for (1) Meningitis and (2) Research and Reagents for Human Immunoglobulin Subclasses.

Last year, we established a new collaboration with WHO to serve as the WHO Global Reference Center for Invasive Bacterial Diseases Surveillance. This comes at a critical time to enable us to respond to the increasing number of requests our laboratories receive for training and technical support all over the world, especially as more countries are now getting ready to introduce new vaccines for meningococcal, Hib and pneumococcal diseases. In addition, we established a new collaboration with PAHO to improve control of pertussis in Latin American countries, a promising project that allows us to contribute to improved surveillance and control of pertussis globally. In an effort to contribute to capacity building in Africa, we are collaborating with GID, CGH and the CDC Foundation, as well as WHO, on SURVAC, a project funded by the Bill and Melinda Gates Foundation to strengthen surveillance capacity in Central Africa.

These projects represent only a sample of our global activities. Working with WHO and our various partners, DBD staff continue to be involved in vaccine development globally, support of the introduction of the new meningococcal conjugate vaccine (MenAfriVac™) in sub-Saharan Africa, and various studies all over the world to support introduction of new pneumococcal vaccines — helping to save lives everywhere.

Rana

**DBD BULLETIN**

**this issue**

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Photo: Fabiana Pimenta, PhD instructing participants in Cairo during a hands-on invasive bacterial disease training.

**Serving as the WHO Global Reference Center**

**In August 2009, the Division of Bacterial Diseases (DBD) signed an official contractual agreement with the World Health Organization (WHO) to serve as the WHO Global Reference Center (GRC) for Invasive Bacterial Diseases Surveillance.**

For many years, specialized DBD labs have had a tradition of functioning in this capacity, and this technical service agreement formalizes this role for the DBD labs. DBD and WHO have a long-standing relationship, with DBD hosting WHO Collaborating Centers for (1) Meningitis and (2) Research and Reagents for Human Immunoglobulin Subclasses. This new agreement is Division-wide, involving the *Streptococcus* and Meningitis Laboratories, and includes the following areas of support for the WHO Regional Reference Laboratories (RRLs): training, strengthening external quality assurance (EQA) systems, and coordination.

Trainings for the RRLs will be based on needs expressed or identified by CDC subject matter experts (SMEs) and the Regional Offices, and will focus on clinical bacteriology and molecular serotyping/subtyping for *S. pneumoniae*, *H. influenzae*, and *N. meningitidis*. Laboratory standard operating

procedures offering the latest bacterial characterization methods will be shared. DBD labs will also support EQA systems, and a subset of isolate testing from the RRLs will be performed at the GRC to verify results. Coordination involves communications and ongoing discussions between WHO Headquarters/Regional Offices/Regional Reference Laboratories and DBD SMEs to assist WHO with conducting selected assignments to finalize decisions on RRLs and to gauge and respond to the support needs.

Maria da Gloria Carvalho, PhD, a microbiologist in the *Streptococcus* Lab, feels this agreement comes at an opportune time for the Division. "WHO dedicating resources and personnel enables a coherent action globally. We now have more advanced and validated diagnostic and serotyping tools, giving us the ability to spread invasive bacterial diseases surveillance lab capacity with very little resources required."

Bernie Beall, PhD, chief of the *Streptococcus* Lab, is equally excited about the prospect of sustainable global surveillance for invasive bacterial diseases. "We feel our best efforts are to aid in the understanding of the burden and serotype distribution globally, so that we can operate from the standpoint of knowledge."

Enhancing the global capacity for sustained laboratory surveillance of invasive bacterial diseases in order to support introduction and monitoring of vaccines is an important component of the long-term goal to reduce preventable deaths globally. Dr. Rana Hajjeh, Director of the Division, believes that lab support to strengthen surveillance for invasive bacterial diseases is key. "Now that developing countries are moving quickly towards new vaccine implementation, this is very timely."

For CDC *Streptococcus* Lab and CDC Meningitis Lab updates, see [www.cdc.gov/ncidod/biotech/strep/pcr.htm](http://www.cdc.gov/ncidod/biotech/strep/pcr.htm) and [www.cdc.gov/meningitis/laboratory.htm](http://www.cdc.gov/meningitis/laboratory.htm).

meeting held in Cameroon on March 10, and attended by Dr. Hajjeh. These national plans include sentinel surveillance in all three countries for bacterial meningitis.

Ben Dahl, PhD, MPH, SURVAC Project Officer for the Global Immunization Division, noted, "I think that SURVAC is an interesting opportunity for collaboration between CDC Centers and external organizations in an effort to improve disease surveillance in Central Africa. The funding from Gates will allow us to take an integrated approach to surveillance in countries that are challenging but also quite rewarding with a big potential for positive impact."



Image: SURVAC countries in Central Africa - Cameroon, Central African Republic and the Democratic Republic of Congo

**CDC's** *Streptococcus* Laboratory, in collaboration with numerous partners in academia and industry (Emory University, University of Alabama at Birmingham, University of Mississippi and PneumoADIP at Johns Hopkins), and with financial support from PATH, is currently establishing a global strain bank for *Streptococcus pneumoniae*.

The primary purpose of this project is to accumulate an extensive, diverse, well-characterized collection of pneumococcal isolates causing invasive disease and pneumonia, recovered primarily from children younger than five years of age in developing countries. The project is mainly focusing on strains from invasive disease that have been isolated in the past five years.

This collection will include strains that have already been characterized over the past few decades as well as strains from areas of the globe that have not been well studied at the molecular level. The isolate bank will be maintained at CDC and made available for future research initiatives. It is expected to be very useful in the process of identifying new proteins that might become targets for new pneumococcal vaccines.

The strain bank expects to screen large numbers of isolates by serotyping, antimicrobial susceptibility testing and multilocus sequence typing (MLST) to determine the extent of pneumococcal strain diversity in developing countries of the world. This will increase the understanding of the population structure of *S. pneumoniae*. The bank will also provide a central repository of well-annotated pneumococcal disease isolates that reflect the genetic diversity of *S. pneumoniae* from around the world.

The Respiratory Diseases Branch's (RDB) Lesley McGee, who coordinates the strain bank, shared what she hopes will be the public health implications of this project. She said, "We feel that an easily accessible and well-documented bank of highly diverse disease-causing pneumococcal strains would be an invaluable resource for the research community to speed development of new vaccines for developing countries. We believe that we should expedite the supply of this diverse collection and associated information such that it will be efficiently and equally available to various scientific and public health establishments to further research and public health initiatives."



Photo: Paulina Hawkins (left) and Sopio Chochua (right) of the Streptococcus Laboratory

Once available, the information will be accessible at [www.cdc.gov/ncidod/biotech/strep/global\\_pneumo\\_strain\\_bank.htm](http://www.cdc.gov/ncidod/biotech/strep/global_pneumo_strain_bank.htm). It is anticipated that information on approximately 300 well-characterized strains is to be available and posted to the website within the next few months. An additional 2000+ isolates from various locations in Europe, New Zealand, South Africa, Taiwan, Hong Kong, Argentina, Brazil, Thailand, Peru, Egypt, Mozambique, India, Nepal, Kenya and Mongolia are currently being screened for inclusion. Efforts to identify groups to collaborate and submit isolates to the strain repository, particularly from developing countries are ongoing.

**The Meningitis and Vaccine Preventable Diseases Branch (MVPDB) is engaged in international activities aimed at strengthening global pertussis surveillance, vaccination coverage and laboratory diagnosis.**

The Strategic Advisory Group of Experts on Immunization (SAGE) serves as the principal advisory group to the World Health Organization (WHO) for development of policy related to vaccines and immunization. SAGE Working Groups are established to increase the effectiveness of SAGE deliberations by reviewing and providing evidence based information and options for recommendations.

In July 2009, the SAGE Working Group on Pertussis Vaccines was formed to review the impact of current pertussis vaccination strategies and surveillance efforts, to propose necessary adjustments of these strategies and to provide updated recommendations on vaccine use. MVPDB supports these efforts and epidemiologist Stacey Martin currently serves as an expert on the Working Group. In October the Working Group presented its recommendations concerning program goals, surveillance and the primary immunization schedule to SAGE, which were very well received. Additional recommendations concerning supplementary vaccination activities and vaccine related issues were presented this month. Martin comments, "The efforts of the Working Group will help SAGE raise the profile of pertussis and make improving surveillance and control a priority for the regions."

to strengthen recognition, confirmation and reporting of pertussis in Latin America.

In support of LAPP, MVPDB has conducted systematic surveillance evaluations in Argentina and Panama, with a third country to be completed in the next few months. These evaluations have led to an understanding of the challenges and limitations of pertussis surveillance in these countries, and have guided efforts to channel resources to improve pertussis detection, laboratory confirmation, reporting and data analyses in Latin American countries.



Photo: Latin American Pertussis Project team

MVPDB medical epidemiologist Fátima Coronado said, "We are excited to have started the LAPP collaboration with PAHO and SVI. This collaboration positions MVPDB strategically for supporting and enhancing pertussis surveillance in Latin American countries. This effort will also help us understand the burden and epidemiology of pertussis in the region, which in turn will help guide their national and regional immunization policy."

General conclusions from the evaluations include (1) interest and motivation in pertussis are high; (2) clinical suspicion of pertussis is limited; (3) culture diagnosis is limited by specimen transport conditions and culture capacity at all laboratory levels; (4) countries, provinces and regions employ different case definitions and suffer a limited ability to link data across databases; and (5) monitoring of surveillance data does not consistently occur.

MVPDB will conduct a week-long training of laboratorians in Panama and Argentina to improve real-time PCR and culture capacity, adding to their epidemiologic knowledge. Additionally, training is planned for all provincial pertussis epidemiologists in Argentina to improve reporting, ongoing epidemiologic data analysis, and implementation of using consistent case definition and data collection forms.



Photo: SAGE Working Group on Pertussis Vaccines

One of the key recommendations of the Working Group was for WHO to support the establishment of demonstration projects in selected countries to expand the laboratory capacity for pertussis diagnosis in developing countries. The joint efforts of CDC, Sabin Vaccine Institute (SVI) and the Pan American Health Organization (PAHO) to develop and implement the Latin American Pertussis Project (LAPP) were specifically acknowledged by SAGE. LAPP is working with selected Latin American Ministries of Health and local institutions to build locally-responsive surveillance capacity

## COMMUNICATIONS

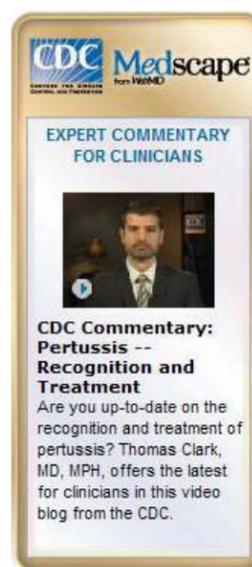
On February 4, 2010, MVPDB's Dr. Tom Clark presented to CDC Leadership, including CDC's Director, Dr. Thomas Frieden, on the potential for a meningitis outbreak following the aftermath of the Haiti earthquake. DBD provides technical support for responding to needs after natural disasters. These concerns often focus on risks of vaccine-preventable diseases, particularly tetanus, diphtheria and meningococcal disease. In the Haiti response, DBD provided support through drafting briefs on risk and prevention of meningococcal disease, tetanus and diphtheria, provided guidance on reagents required for on-site laboratory testing for these diseases and on acquisition of diphtheria antitoxin, and on planning for vaccination campaigns to protect infants, children and adults from these diseases. Briefs for preventing these diseases in natural disasters can be found at [emergency.cdc.gov/disasters/earthquakes/haiti/pre-decision\\_briefs.asp](http://emergency.cdc.gov/disasters/earthquakes/haiti/pre-decision_briefs.asp).

A new series of commentaries has been launched as part of a collaboration between CDC and Medscape. These commentaries are designed to deliver CDC's guidance directly to Medscape's physicians, nurses, pharmacists, and other healthcare professionals. In this series, experts from CDC offer video commentaries on current topics important to practicing clinicians. A pertussis commentary was launched in early 2010 and has received over 29,000 views. A meningococcal disease commentary went live in March and a pneumococcal disease video will be available in May. View commentaries at [medscape.com/partners/cdc/public/cdc-commentary](http://medscape.com/partners/cdc/public/cdc-commentary).

RDB's Dr. Lauri Hicks is now featured in a video at a long-term exhibit, THEM, at Discovery Place in Charlotte, NC. The exhibit provides an inside look at the plethora of bacteria, microbes, parasites and other microorganisms that live in and on the human body. Part of the exhibit helps visitors understand how their behaviors and interactions with the outside world impact the microbes living within their own bodies. It details the impact and potential consequences of antibiotic drugs and antibacterial substances. This part of the exhibit also includes virtual games about antibiotic resistance.

The second annual World Meningitis Day took place on April 24, 2010. Organized by the Confederation of Meningitis Organizations (CoMO), the observance seeks to raise awareness about meningitis and the importance of being vaccinated. Participants were encouraged to log onto the website and virtually join hands against meningitis. See [www.comoonline.org/JoiningHands.aspx](http://www.comoonline.org/JoiningHands.aspx) and [www.cdc.gov/features/meningococcal](http://www.cdc.gov/features/meningococcal) for more information.

The ABCs website has been launched in CDC's new template. It is available at [www.cdc.gov/abcs](http://www.cdc.gov/abcs).



CDC Commentary: Pertussis -- Recognition and Treatment  
Are you up-to-date on the recognition and treatment of pertussis? Thomas Clark, MD, MPH, offers the latest for clinicians in this video blog from the CDC.

## Epi-AIDS & Investigations

- Outbreak of Legionnaires' Disease, Mexico, April 2010
- Investigation of meningococcal meningitis outbreak, Ghana, March 2010
- Cluster of serogroup B meningococcal disease in a university, Ohio, March 2010
- Outbreak of respiratory illness associated with *Chlamydomydia pneumoniae*, Big Spring Federal Correctional Facility, Texas, February 2010

Follow up from 2009 Legionnaires' Disease (LD) investigations

- LD outbreak at an apartment complex for seniors (Baltimore). RDB assisted with identifying cases and risk factors, determining the source, and recommending interventions. The potable water system was the source.
- Cruise ship cluster (Miami). RDB assisted with additional case finding, environmental investigation, and recommendations for prevention of future cases. No *Legionella* was found on the ship, but the cruise line had done extensive remediation before we took samples.
- Cruise ship cluster (Los Angeles). RDB assisted with additional case finding, environmental investigation, and recommendations for remediation. *Legionella* was found in several whirlpool spas on the ship.

ACIP: Updates from February 24-25, 2010 Meeting  
DBD participated in the meeting during the following sessions:  
• 13-Valent Pneumococcal Conjugate Vaccine (PCV13): Information, Discussion & Vote  
Recommendation for use of PCV13 and immunization schedules:  
Dr. Pekka Nuorti  
• Meningococcal Vaccine: Information & Discussion  
Considerations in use of meningococcal conjugate vaccines in infants: Dr. Amanda Cohn

FDA licensed PCV13 on February 24, 2010. On that same day, ACIP voted to recommend PCV13. Refer to the March 12, 2010 issue of MMWR for more details.

FDA licensed a second meningococcal conjugate vaccine, Menveo®, on February 22, 2010. Menveo® will follow the same ACIP recommendations as Menactra®. Refer to the March 12, 2010 issue of MMWR for more details.

As of January 21, 2010 Merck's PedvaxHIB® is fully available again in the US for routine vaccination. Currently available Hib vaccines are ActHIB®, Hiberix®, PedvaxHIB®, and Pentacel®.

On January 29, 2010 Bill and Melinda Gates announced that their Foundation will commit \$10 billion over the next 10 years to help research, develop and deliver vaccines for the world's poorest countries. The Gateses said that increased investment in vaccines by governments and the private sector could help developing countries dramatically reduce child mortality by the end of the decade, and they called for others to help fill critical financing gaps in both research funding and childhood immunization programs.

As of January 24, 2010 Serum Institute of India received formal approval for MenAfriVac™ (meningococcal serogroup A conjugate vaccine) and is now manufacturing the vaccine at scale. Serum Institute of India and the Meningitis Vaccine Project have met with the WHO prequalification team and the Men A dossier has been granted "fast track" status (completed review targeted within 6 months). Prequalification is expected in June/July of 2010. WHO is managing vaccine introduction and the planning work is proceeding in Burkina Faso where vaccine is expected to be introduced in Q4 2010 at public health scale (all 1-29 year olds).

## Save the Date!

GBS Awareness Month  
July, 2010  
[www.groupbstrepinternational.org](http://www.groupbstrepinternational.org)



World Pneumonia Day  
November 12, 2010  
[www.worldpneumoniaday.org](http://www.worldpneumoniaday.org)



Get Smart About Antibiotics Week  
November 15-21, 2010  
[www.cdc.gov/getsmart](http://www.cdc.gov/getsmart)

