

regards from  
*Rana...*

Dear colleagues,

In this current Bulletin, we attempt to summarize some of the major activities our division participated in or conducted during 2011. This Bulletin highlights the breadth of our work and its important impact on public health both in the U.S. and around the world!

Your hard work and tireless commitment continues to save lives and advance the knowledge about our diseases every day. I would like to thank you for all you did this year and wish you, your families and loved ones healthy and happy Holidays. All the best for 2012!

Rana



**Photo: MVPDB's Nancy Messonnier accepting the 2011 Philip R. Horne Award from NCIRD Director Anne Schuchat and Surgeon General Regina Benjamin at the National Immunization Conference in Washington, DC.**

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## Quarter 1

In January, **new meningococcal conjugate vaccine (MCV4) recommendations** were published in MMWR. Now recommended: 1) a booster dose at age 16 years and 2) a 2-dose primary series for 2 through 54 year-olds with certain medical conditions and for adolescents with HIV infection.

The **Streptococcus Laboratory** applied classical bacteriology and molecular diagnostics/typing in tracing a meningitis outbreak strain to the oral flora of a radiology physician assistant for an investigation started in late 2010. The Strep Lab has been using multilocus sequencing technology for another ongoing investigation in 2011 involving injections from contaminated pre-prepared avastin syringes that caused severe eye infections in numerous people from two states. The Strep Lab has already discovered that 4 strains from 3 different species were identified from both sources (contaminated syringes and vitreous humor of patients), indicating the probable causal link.

In January, DBD learned of an increased risk for **febrile seizures** in children concomitantly receiving influenza and 13-valent pneumococcal conjugate vaccines (PCV13). DBD worked with the Immunization Safety Office, Influenza Division, and Advisory Committee on Immunization Practices (ACIP) work groups to review the data and develop recommendations. Following review by ACIP, materials were developed for parents and providers.

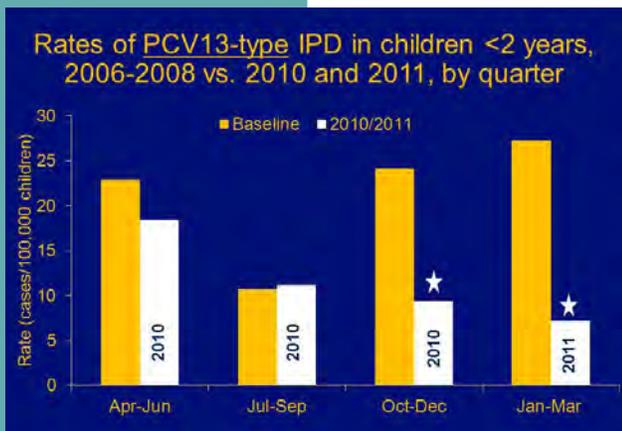
In February, DBD released 2 **pertussis training videos** illustrating the appropriate collection and handling techniques for nasopharyngeal swab and aspirate procedures. In light of the 2010 pertussis increase, clinicians are increasingly ordering tests for pertussis. Appropriate specimen collection is vital to obtaining accurate diagnostic results.

In February, ACIP made revised recommendations on **use of Tdap vaccine and use of postexposure antimicrobial prophylaxis for healthcare personnel**. Revised recommendations on use of Tdap in healthcare personnel incorporate the changes made by ACIP at the October 2010 meeting and support direct language to remove barriers to facilitate the uptake of Tdap.

March marked a **year of PCV13 introduction** in the U.S. DBD continues to assess data from 12 geographic regions participating in its ongoing PCV13 Vaccine Effectiveness Evaluation. Early evidence suggests PCV13 is already reducing the number of serious infections in children. *See graph at left.*

In March, at the **45th National Immunization Conference** held in Washington, DC, 10 presentations were made by DBD staff. The 2011 **Philip R. Horne Award** was presented to Nancy Messonnier for unparalleled scientific contribution and leadership in advancing the mission of NCIRD and the prevention and control of vaccine-preventable diseases, and for exceptional mentorship and staff development. *See photo at top.*

American Recovery and Reinvestment Act (Recovery Act) **funded studies on vaccine effectiveness** of pneumococcal and meningococcal vaccines continued throughout 2011. These studies will carry on in 2012 with funding from the Patient Protection and Affordable Care Act and the Vaccines for Children Program.



**Image: Graph showing early impact of PCV13, as presented by RDB's Matt Moore at IDSA in October. Evidence suggests PCV13 is already reducing the number of serious infections in children.**

# Quarter 2

DBD staff conducted an **Invasive Bacterial Vaccine-Preventable Diseases (IB-VPD) network** training workshop in Manila, Philippines in the spring. DBD serves as the Global Reference Laboratory for this network and has supported the World Health Organization (WHO) regional reference labs to build capacity for detection, isolation and characterization of these organisms. DBD supports countries in several regions to conduct surveillance. See photo below left.

**World Meningitis Day** was celebrated on April 24. In addition to highlighting the event through CDC channels, DBD staff participated at the National Meningitis Association's annual gala in New York City. In late 2011, new meningitis and meningococcal disease websites went live.

In May, a stakeholder meeting was held in Washington, DC to kick-off a **public engagement** project on meningococcal vaccines. CDC held four community meetings (organized by contractors, FHI360 and The Keystone Center in collaboration with state and local health departments) to give parents, healthcare providers, health plan administrators and public health officials an opportunity to provide input regarding how to use meningococcal vaccines for infants and young children.



Photo: RDB's Chad Cox and Ruth Link-Gelles working on the PCV13 missed opportunities analysis.



Photo: RDB's Carla Talarico, second from left, works with participants in characterizing pneumococcal isolates in a WHO Western Pacific Regional Laboratory Training Workshop for Invasive Bacterial Vaccine-Preventable Disease (IB-VPD), Manila, Philippines, in April.

In June, ACIP made recommendations that women's healthcare providers should implement a **maternal Tdap vaccination program** for unvaccinated women. Healthcare providers should administer Tdap preferably during the third or late second trimester (after 20 weeks gestation). Alternatively, they can administer Tdap immediately postpartum. ACIP also updated recommendations on cocooning and special situations.

In June, ACIP made recommendations for use of **MCV4 for certain groups of children 9 through 23 months of age** at increased risk for meningococcal disease. This is the first time that MCV4 has been licensed and recommended for children younger than 2 years of age.

DBD staff collaborated with the Division of Reproductive Health to launch an emergency investigation through Active Bacterial Core surveillance (ABCs) into **postpartum invasive bacterial cases** and possible associations with postpartum intrauterine device (IUD) placement. A new protocol is now moving forward to fully investigate the problem through the Emerging Infections Program sites.

In June, DBD was alerted to **PCV13 missed opportunities** in which invasive pneumococcal disease cases could have been prevented had older children received the recommended supplemental dose of PCV13. To communicate this important message to clinicians, DBD, in collaboration with ISD, published articles in MMWR and AAP News. See photo above right.

DBD staff attended the WHO annual **New and Under-utilized Vaccines Implementation (NUVI)** meeting in Montreux, Switzerland in June. Staff

provided updates on progress on introduction of new vaccines (meningococcal, Hib and pneumococcal) in countries around the world, especially developing countries, and participated in workshops on surveillance, pneumococcal vaccine schedules, and other topics that aim at facilitating new vaccine introduction.

DBD collaborates on 2 case-control studies of the **effectiveness of pneumococcal conjugate vaccine (PCV) in South Africa** – the first African country to introduce PCV into its national routine infant immunization program. Both studies are attempting to evaluate effectiveness among HIV-infected and HIV-uninfected children. DBD statisticians and epidemiologists have been involved from the design stage through to recent preliminary analyses, providing direct technical support as well as training and mentoring for South African statisticians and epidemiologists involved in the studies. Interim analyses of the studies were conducted in November and December and submitted to the International Symposium on Pneumococci and Pneumococcal Diseases.



Photo: The Burkina Faso Minister of Health presented this framed photo to MVPDB in appreciation for the collaboration in introducing and measuring impact of MenAfriVac™.

## DBD 2011 FAST FACTS

3 Podcasts

2 Websites

3 CDC Connects Articles

3 Twitter Chats

16 Fact Sheets

20+ International Lab Trainings

6 Videos

11 Epi-Aids

In early July, DBD staff **moved from Building 1 to 24** on the Roybal campus. The exodus from Building 1 marked a major milestone in CDC's history. Many people have fond memories of days gone by, when Building 1 was CDC. See the Spring/Summer Bulletin for DBD memories. See *photo below*.

After supporting **introduction of meningococcal vaccines** (MenAfriVac™) in Burkina Faso, DBD demonstrated statistically significantly lower annual attack rates compared to any year since 1997, with an 80% reduction in suspected meningitis cases in 2011. Studies of immunogenicity of vaccine in infants were also completed. Herd immunity was evaluated by enrolling 40,000 subjects in a nasopharyngeal carriage study in Burkina Faso; 0 of 15,000 subjects had nasopharyngeal carriage after implementation of vaccination. When fully implemented, this vaccine could eliminate meningococcal disease epidemics in the African Meningitis Belt, saving 123,000 lives and preventing 287,000 cases of permanent disability within ten years.

An on-site training for 18 international scientists from 10 countries on **how to use TAC** (formerly known as the TaqMan® Low Density Array (TLDA) card) was held at CDC in August. TAC is changing the way DBD responds to outbreaks by being able to test for multiple pathogens from a single specimen, allowing experts to rapidly identify the etiology of a respiratory outbreak.

In August, the first-ever **diagnosis and treatment guidelines for children with community-acquired pneumonia** were published by the Pediatric Infectious Diseases Society and the Infectious Diseases Society of America. Staff from DBD reviewed and provided input in addition to co-authoring the recommendations.

At an **annual meningitis meeting** held in Burkina Faso in September much of the data that DBD has worked with Burkina Faso to collect through strengthening surveillance and lab capacity was highlighted. During this trip, DBD staff met with the Minister of Health to discuss ongoing collaboration activities. See *photo on opposite page*.



*Photo: DBD All-Hands summer meeting to say goodbye to Building 1. Pictured from left to right are MVPDB's Amanda Cohn, Elizabeth Briere, Amanda Faulkner, Stacey Martin, Matt Griffith, Jessica MacNeil and Tami Skoff.*

DBD was awarded **\$2 million in USAID** funding to support MenAfriVac™ introduction in West Africa and pneumococcal vaccine introduction in Kenya, Mozambique, Malawi and Bangladesh.

To **improve pertussis diagnostics**, DBD, in collaboration with the Association of Public Health Laboratories, utilized Recovery Act funding to conduct lab trainings (1 for PCR and 2 for serology) for 23 state and local public health labs.

In September, DBD and flu experts joined ABC News' senior health and medical editor Dr. Rich Besser for a **live Twitter chat** on how to manage illnesses during the upcoming cold and flu season. In November, DBD joined Dr. Besser for live Twitter chats on pneumonia and Get Smart About Antibiotics Week. Approximately 5 million impressions were made per chat. See *photo at left*.

DBD completed a study of **meningococcal conjugate vaccines in the military** to determine duration of protection. After studying 1,200 participants for three years, waning of immunity was demonstrated, consistent with clinical vaccine efficacy data. These data may lead to recommendations for booster doses for military personnel that remain at increased risk.



*Photo: Live Twitter chat with ABC News' Dr. Rich Besser for Get Smart About Antibiotics Week. Pictured are Lauri Hicks (RDB), Alison Patti (DBD) and Darcia Johnson (RDB), with colleagues from OADC and DHQP.*

**18+** Awards

**1** Presidential Greeting

**4** Tuesday Morning Seminars

**5** ACIP Votes

**1** Capitol Hill Announcement

**325+** Documents Cleared

**3** Health Observances Celebrated

**4** New EISOs

# Quarter 4

DBD presented an impressive update on division accomplishments to Dr. Frieden and his staff during the **October QPR**. Domestic and global activities were included in the 21 new goals for the current fiscal year. Modifications to DBD initiatives in reducing pneumococcal disease in the U.S. and internationally and introduction and surveillance of MenAfriVac™ in Africa were presented, and a new cross-center collaborative initiative to utilize CDC technology for multi-pathogen testing in public health settings was highlighted. *See photo on next page.*

DBD's MPIR Laboratory completed a proof of concept project to use **Dried Blood Spots** (DBS) as the sample matrix for emergency response assays. The anthrax anti-PA IgG ELISA assay was modified to work with DBS with comparable accuracy and precision to serum. DBS samples have significant

advantages for ease of collection and transport, which are especially advantageous in emergency response or when dealing with pediatric or other special populations, as well as for returning samples from remote areas. The success of the pilot program has led other labs to develop DBS methods for use in studies where collection and transport of serum is cost prohibitive, such as meningitis in sub-Saharan Africa. DBD received **funding from BARDA** to establish, with OPHPR, a multi-Center (NCEH, NCEZID, NCIRD) initiative to develop rapid and point of care diagnostics for anthrax emergency response.

As part of the **Latin American Pertussis Project**, pertussis surveillance coordinators and microbiologists from Argentina, Mexico and Panama participated in a DBD-sponsored training at CDC for three weeks. The training increased the countries' capacities for pertussis surveillance, epidemiology and laboratory diagnostics. *See photo at left.*



*Photo: MVPDB's pertussis epidemiology and lab teams hosted visitors from the Latin American Pertussis Project for a 3 week training.*

A **study of DTaP vaccine** was completed, demonstrating 95% vaccine efficacy within 12 months but waning immunity declining to 70% efficacy by 60 months after the 5th dose of vaccine. In collaboration with the California Department of Public Health, DBD reviewed medical records of more than 4,000 children from 15 California counties during the state's 2010 pertussis epidemic and reviewed these medical records during personal visits to more than 250 medical practices to read through each chart. The final analysis included more than 600 children with pertussis and more than 2,000 children without infection in a comparison group.

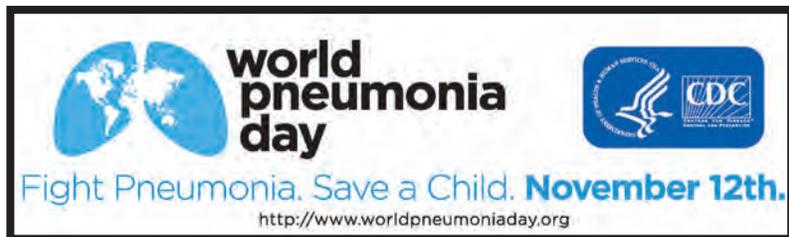
2011 marked the 3rd annual **World Pneumonia Day** and first anniversary of the roll-out of new pneumococcal conjugate vaccines in the developing world. DBD helped coordinate worldwide activities, posted information on CDC's internal and external websites and social media accounts, published a MMWR announcement and displayed a co-branded banner over the main campus entrance. *See banner at right.*

To support implementation of the 2010 prevention of perinatal group B streptococcal (GBS) disease guidelines, DBD conducted **formative research with laboratorians** who process GBS specimens. Based on this research, new tools were created and posted on the CDC GBS website that highlight key steps to avoid false negative results when processing specimens. The GBS team is developing an **interactive app** for pediatricians and obstetricians to support implementation of the guidelines.

DBD staff attended the **SURVAC** steering committee meeting in Bangui, Central African Republic to review progress and discuss work plans for next year in the 3 countries that the project focuses on (DRC, Cameroon and CAR). After more than 7 visits this year, 2 of 3 countries have implemented PCR and are turning out data. DBD supports sentinel surveillance activities for invasive bacterial disease in the 3 countries, all of which have recently introduced PCV13. Cameroon is introducing meningococcal vaccines this fall.



The 4th annual **Get Smart About Antibiotics Week** was in November. A MMWR article on new data on antibiotic prescribing trends in children was published. The program received a formal greeting from President Barack Obama. DBD collaborated with DHQP on a press release, fact sheets, a live Twitter chat with ABC News' Dr. Rich Besser, postings on CDC's internal and external websites and social media accounts, a Hill Announcement to U.S. congressional staff and a MMWR Announcement.



*Image: Banner displayed at CDC main entrance. 2011 marked the first anniversary of the introduction of new pneumococcal conjugate vaccines in developing countries.*

## Quarter 4 continued...

*Photo: In Bangui, Central African Republic at the SURVAC steering committee meeting: DBD's Rana Hajjeh with the Minister of Health of CAR, Monsieur Jean Michel Madamba and Linda Venczel from the Gates Foundation.*

Five of the **11 Epi-Aids** DBD responded were in Q4: Legionnaires' disease in the Virgin Islands, group A *Streptococcus* in Georgia, mycoplasma in West Virginia, pertussis in Maine and pertussis diagnostics in Arizona.



**Photo:** RDB's Jennifer Loo boiling water on a clean burning cookstove to prepare Ugali—a traditional Kenyan dish made from maize and water—with Steve Kola from the Kisumu, Kenya Safe Water and AIDS Project (SWAP).

DBD staff visited Western Kenya for its research study on newly available **clean cookstoves** in rural villages. Data from this study will aid the work of governments and others in combating respiratory diseases. DBD, along with partners, will gather data that can help key stakeholders to better understand factors that may influence a family's decision to purchase and routinely use a clean burning stove, and gauge the potential of the most promising interventions for large scale, sustainable adoption, manufacturing and dissemination in Western Kenya. *See photo at left.*

DBD epidemiologists worked with the **Accelerating Vaccine Introduction Technical Assistance Consortium (AVI TAC)** Special Studies Team to complete large reviews of available evidence on PCV schedules for children in various areas of the world (the "landscape project") and on the impact of PCV use on vaccine- and non-vaccine-type invasive pneumococcal disease (the "serotype replacement project"). DBD staff led expert meetings in Geneva, Switzerland in October to review the findings. Conclusions of the investigations were presented at the WHO SAGE meeting in November.

SAGE published a **meningococcal disease position paper** recommending that countries with high or intermediate endemic rates of meningococcal disease and countries with frequent epidemics introduce large scale vaccination programs using meningococcal conjugate vaccines. DBD work with ACIP and vaccine introduction in Africa contributed to this position paper.

Several staff from DBD attended the **Aetiology of Neonatal Infections in South Asia (ANISA)** project's Second Investigators' Meeting in Niagara, Canada and a satellite symposium on group B streptococcal disease in developing countries at SickKids Hospital, Toronto. The ANISA field sites are in their 3rd month of piloting. Preliminary data

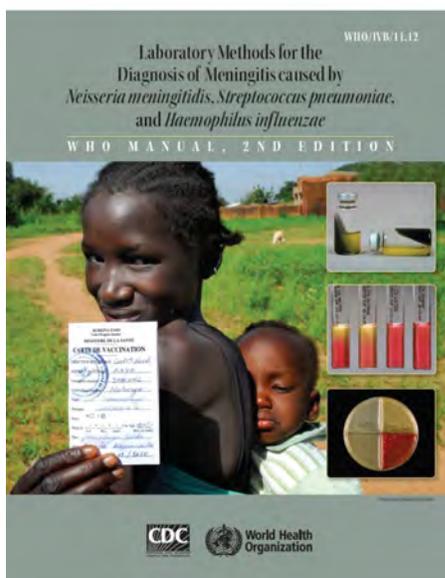


**Photo:** DBD's Gina Mootrey, Stephen Hadler, Derrick Lake and Kathy Tatti preparing for the October QPR.

were reviewed, challenges were discussed and criteria were set for graduation from the pilot to the main study. DBD epidemiology and laboratory teams are active members of the ANISA coordination team.

For a new **reference standard serum**, DBD provided consultations on the characteristics of the assay, designed the bridging studies between the old and new preparations and analyzed the final results. The reference standard serum, lot 89SF, has been used in pneumococcal ELISAs since 1990 for the evaluation and licensure of vaccines. In 2005, it was estimated that there remained between 2 and 5 years' supply. Since lot 89SF was the reference standard used in the evaluation of PCV7, the link to clinical efficacy would be severed if stocks became completely depleted. A new preparation, 007sp, has replaced 89SF as the pneumococcal reference standard. Sufficient quantity of this new preparation is available such that, with judicious use, it should be available for at least 25 years.

DBD scientists presented and participated in FDA's VRBPAC meeting that led to VRBPAC vote in support of **licensure of PCV13 for use in adults**. A final decision by FDA on licensure is pending. DBD scientists and the ACIP pneumococcal vaccine working group completed a review of available data and set goals for additional data that are needed to make a general recommendation for the vaccine's use in adults.



**Photo:** Cover of the 2011 updated manual on laboratory detection of meningitis, which replaces the 1999 edition.

In collaboration with WHO, DBD laboratorians completed an **updated manual on laboratory detection of meningitis**. The last manual was issued in 1999 and since then, routine immunization against Hib, meningococcal A, and pneumococcal disease has become a reality or is under deliberation in countries around the world. *See photo at left.*

DBD completed a body of work that culminated in the **first successful completion of proficiency tests** for use of the TAC/Viia7 platform in the ANISA sites. The projects included developing about a dozen new assays, development and compilation of standard operating procedures, identification and correction of Viia7 software problems, training of sites by webinar, at CDC and in-country, development of a proficiency test panel and development of a positive control plasmid.

In 2011, DBD enrolled an additional 15 domestic labs and 4 international labs in the **ELITE quality assurance program** to assess ability to detect Legionellae in water samples. 108 labs are now enrolled in the program. Advertising to international labs began in late 2011 and new participants will receive their first panels in January 2012.

At a December meeting in Annecy, France, the **AVI Special Studies** team reviewed progress on studies evaluating impact of pneumococcal and rotavirus vaccines, as well as special studies on research priorities for the next few years.

# Major Event in 2011

The GAVI Alliance announced it will provide funding for 16 more developing countries to introduce rotavirus vaccines and 18 more countries to introduce pneumococcal vaccines. GAVI CEO Seth Berkley, MD said, "The death toll of rotavirus and pneumococcal infections in Africa is particularly devastating, and this is where these vaccines will make the most significant impact, not only in lives saved, but also in terms of healthy lives lived."

## Mark your 2012 calendar

**Advisory Committee on Immunization Practices (ACIP) Meetings** in 2012: February 22-23, June 20-21 & October 24-25 in Atlanta, GA.

More information: <http://www.cdc.gov/vaccines/recs/acip/meetings.htm>

**Clinical Vaccinology Course**, March 9-11, 2012 in Chicago, IL.

More information: <http://www.nfid.org/>

**International Conference on Emerging Infectious Diseases (ICEID)**, March 11-14, 2012 in Atlanta, GA.

More information: <http://www.iceid.org/>

**National Immunization Conference Online (NICO)**, March 26-28, 2012 (virtual).

More information: <http://www.cdc.gov/vaccines/events/nic/default.htm>

**Epidemic Intelligence Service (EIS) Conference**, April 16-20, 2012 in Atlanta, GA.

More information: <http://www.cdc.gov/eis/conference.html>

**World Meningitis Day**, April 24, 2012.

More information: <http://comoonline.org/about-us/what-we-do/world-meningitis-day/>

**Annual Conference on Vaccine Research**, May 7-9, 2012 in Baltimore, MD.

More information: <http://www.nfid.org/>

**Association of Public Health Laboratories (APHL) Annual Meeting**, May 20-23, 2012 in Seattle, WA.

More information: <http://www.aphl.org/conferences/2012AM/Pages/default.aspx>

**American Society for Microbiology (ASM) General Meeting**, June 16-19, 2012 in San Francisco, CA.

More information: <http://www.asm.org/index.php/meetings/general-meeting12.html>

**Group B Strep Awareness Month**, July, 2012

More information: [http://www.groupbstreptinternational.org/globe/globe\\_issue2-1.html#anchor1](http://www.groupbstreptinternational.org/globe/globe_issue2-1.html#anchor1)

**Joint Statistical Meetings**, July 29-August 2, 2012 in San Diego, CA

More information: <http://www.amstat.org/meetings/jsm/2012/index.cfm>

**Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC)**, September 9-12, 2012 in San Francisco, CA.

More information: <http://www.icaac.org/index.php/general-information/past-icaac-resources>

**ID Week, a Joint Meeting of IDSA, SHEA, HIVMA, and PIDS**, October 17-21, 2012 in San Diego, CA.

More information: <http://www.idweek.org/>

**World Pneumonia Day**, November 12, 2012.

More information: <http://worldpneumoniaday.org/>

**Get Smart About Antibiotics Week**, November 12-18, 2012.

More information: <http://www.cdc.gov/getsmart/campaign-materials/week/index.html>



## Reminders for 2012



- Save **posters** presented at meetings and conferences to display during a DBD All-Hands Meeting.
- Take **photos** of work activities here and in the field. Action shots are always great!
- Submit **articles** accepted for publication to NCIRD's Advance Media Report. Send to Alison Patti prior to online or print publication.
- Make sure DBD OD knows about any **awards** you receive. Please forward these items to Alison Patti.