Since 1995, Active Bacterial Core surveillance (ABCs), an active, population and laboratory-based surveillance system has been an integral component of CDC’s Emerging Infections Program (EIP). ABCs’ data have proved valuable to the division, center and CDC’s overall mission of protecting the public’s health by describing the incidence and epidemiologic characteristics of invasive bacterial diseases due to groups A and B Streptococci (GAS and GBS), *Haemophilus influenzae*, *Neisseria meningitidis*, *Streptococcus pneumoniae*, and since 2005, Methicillin-resistant *Staphylococcus aureus* (MRSA).

ABCs provides a unique platform for advancing the understanding of the incidence and impact of ABCs pathogens, informing vaccine development, conducting post-licensure evaluation of vaccine efficacy, evaluating disease prevention and control measures, advancing laboratory methods and diagnostics, and informing national policy considerations in these areas. Today, the program’s surveillance catchment area includes 10 sites encompassing up to 42 million persons, accounting for about 13% of the US population. ABCs methods and results are shared with international groups.

ABCs core mission remains to track the incidence and epidemiology of emerging infectious diseases. In 2011, ABCs added surveillance for diseases caused by *Legionella* and *Bordetella pertussis*, which have become more common. According to Gayle Langley, a medical epidemiologist who became ABCs Project Director in 2011, “The addition of legionellosis surveillance will allow us to provide better estimates of disease incidence and severity of illness and determine where prevention efforts should be focused.” The main goals of pertussis surveillance are to determine the incidence and epidemiologic characteristics of the illness among all age groups and monitor the impact of pertussis vaccines.

The uses of ABCs data are quite varied. The Advisory Committee on Immunization Practices (ACIP) recently used ABCs’ pneumococcal data in discussing the possible use of the 13-valent pneumococcal conjugate vaccine (PCV13) in adults and in discussing meningococcal vaccines in infants. ABCs’ data informed changes to recommendations on a booster dose of quadrivalent meningococcal vaccine (MCV4) in adolescents. Preliminary data from an early-onset GBS traceback evaluation—an evaluation that assessed the effectiveness of intra-partum antibiotics given to mothers to prevent early onset disease in infants—has aided communications professionals in developing health communication technology tools, such as smart phone and tablet “apps” for use by pediatricians and obstetricians.

Earlier this month ABCs hosted its 2012 ABCs Surveillance Officers’ Meeting in Atlanta with 60 plus attendees. Surveillance officers from each of the 10 ABCs sites plus staff from 2 additional sites that conduct special studies were in attendance. The three day meeting included more than 25 presentations, updates on special studies and activities targeting ABCs pathogens and an update on the ABCs’ workgroups that were recently formed and the ABCs’ workgroups that were recently formed to review advancements and changes in laboratory methods—including the use of culture independent diagnostics and to explore how social determinants of health could be potentially related to and effect the incidence of ABCs pathogens.

New projects proposed in ABCs include an analysis of host genomics for group A streptococcal infections and an investigation of streptococcal and staphylococcal infections after postpartum intrauterine device insertion.

To learn more about ABCs, visit: www.cdc.gov/abcs.
The “Meningitis Belt” in Africa includes 26 of the world’s poorest countries. Frequent outbreaks and sporadic explosive epidemics result in tens of thousands of meningitis cases. Elimination of this disease could reduce morbidity and mortality, disabilities, and countries’ health expenditures.

CDC’s work in meningitis prevention spans several decades and was important in establishing the burden of disease that contributed to the investment case for development of and the mass campaigns that first introduced MenAfriVac™ in Burkina Faso in 2010. This meningococcal A conjugate vaccine was developed specifically to combat epidemic meningitis in sub-Saharan Africa by a consortium of partners including CDC, PATH, WHO, FDA, the Health Protection Agency and the National Institute for Biological Standards and Control, with funding from the Bill & Melinda Gates Foundation.

Eliminating epidemic meningitis as a public health concern in the sub-Saharan African “Meningitis Belt” is a major initiative for the Meningitis and Vaccine Preventable Diseases Branch (MVPDB) and the agency. MVPDB supported the first mass vaccination campaigns in Burkina Faso in 2010 and in Mali and Niger in 2010-2011. In December 2011, Nigeria, Chad and Cameroon introduced the vaccine. As of May 2012, nearly 55 million people had been vaccinated. Surveillance in Burkina Faso during the spring 2011 meningitis season showed the lowest annual incidence of meningitis compared to any year. And there has not been a case of Men A meningitis in a vaccinated person.

Staff from the branch routinely travel to sub-Saharan Africa and have helped to strengthen surveillance for bacterial meningitis. Working alongside seconded epidemiologist Fabien Diomande (WHO Intercountry Support Team West Africa), MVPDB staff work with WHO and local health authorities to strengthen epidemiologic and laboratory capacity to provide high quality surveillance data to evaluate the immediate impact of the MenAfriVac™ vaccine on epidemics and disease. Additionally, staff have supported expanded safety studies in Burkina Faso, Mali and Niger following campaign rollouts in which data did not show any association of MenAfriVac™ with serious adverse events.

To support building the in-country capacity so essential to eliminating epidemic meningitis, MVPDB secures training opportunities for their African colleagues. Pictured on the right are NCIRD Director Anne Schuchat and MVPDB’s Ryan Novak with Tiga Felix Tarbangdo, a surveillance epidemiologist with the Burkina Faso Ministry of Health whose visit to the US was funded by an ICIED Leaders program as part of the group’s 8th International meeting in Atlanta in April. Mr. Tarbangdo also visited CDC to meet with MVPDB staff working on meningitis and attended an Intermediate Epi Info training program along with MVPDB’s Amanda Faulkner, Sema Mandal and Jessica MacNeil.

Staff are now ramping up to support campaigns in Ghana, where a mass campaign is planned for early October targeting more than 4 million people in the northern regions of the country, and in Nigeria which is now in its second phase of vaccine campaigns. MVPDB’s Ryan Novak says, “Nigeria’s population is massive and it will be a challenge for the country to reach vaccine coverage above 80%. Nigeria is the first MenAfriVac™ implementing country where CDC has had a country office. The institutional knowledge and technical assistance that CDC Nigeria provides is invaluable to success of our work there.” Ryan Novak, Sema Mandal and Xin Wang are gearing up for travel to Nigeria within the next few months to work with country partners and the WHO country office to conduct real-time PCR training and implementation. Ryan Novak and others continue to help strengthen surveillance activities using funds from USAID.

MVPDB’s work in eliminating epidemic meningitis in sub-Saharan Africa is often cited by the CDC Director as an outstanding example of a public-private partnership that is having a substantial impact on improving health across the African continent. By year’s end, branch staff will have represented the agency in collaborations with WHO and Ministers of Health on evaluations in at least 2 additional hyper-endemic countries; established a pilot methodology for immunological assessment of vaccine failures; used modeling to evaluate strategies for the maintenance phase of vaccination campaigns (e.g., childhood vaccination); and conducted health systems research on key surveillance components to monitor vaccination programs.

MenAfriVac™ costs less than 50 US cents per dose and is expected to save as many as 150,000 lives between 2010 and 2015. By 2016, all 26 countries in the African Meningitis Belt are expected to have plans to complete the mass vaccination campaigns. In countries with some of the weakest supporting infrastructure, the logistical challenges of staging mass vaccination campaigns are immense but CDC is committed to collaborating with partners world-wide to eliminate epidemic meningitis.
Reducing Pneumonia Morbidity and Mortality with Pneumococcal Vaccines

Through partnerships and collaborations, staff from the Respiratory Diseases Branch (RDB) work to reduce death and disability from vaccine-preventable respiratory diseases both domestically and globally. One major global initiative underway is to reduce disease and deaths from pneumonia among children younger than 5 years of age in developing countries.

World-wide, nearly 1.6 million children die of pneumonia each year; with half of these deaths occurring in Afghanistan, Pakistan, India, Nigeria, and the DR Congo. Implementation of pneumococcal conjugate and Haemophilus influenzae type b (Hib) vaccines will prevent the two most common causes of pneumonia deaths. Almost all of 800,000 child deaths due to Streptococcus pneumoniae each year occur in low and middle-income countries.

In recent years, the pneumococcal conjugate vaccine (PCV), a highly effective preventive intervention that has dramatically reduced the burden of pneumococcal disease in high-income countries, has been introduced to areas of the world with the greatest pneumococcal disease burden—the low and middle income countries. Pneumococcal vaccines have reached 17 GAVI-supported countries in recent years and within the last few months, successful pneumonia vaccine campaigns have been launched in Nigeria and Ghana.

Of special note, with regard to PCV, are invitations for DBD experts to speak at prestigious international conferences, including the 2012 presentations by Matt Moore and Chad Cox at ISPPD and ICEID, underscoring an increased interest in 13-valent pneumococcal conjugate vaccine (PCV13). Moore and Cox presented data on the early effects of PCV13 using United States data from CDC’s Active Bacterial Core surveillance before and after the introduction of PCV13 in March 2010 that highlighted the potential direct and indirect effects of the vaccine. Their finding of a decrease in overall invasive pneumococcal disease (IPD) rates among vaccine-eligible children younger than 2 years of age was discussed along with their findings showing a decrease in IPD among all age groups (except children aged 5-17 years) during the 4th quarter of 2011—an early indicator of potential indirect effects of the vaccine. Moore and Cox found no evidence of an increase in IPD rates due to non-vaccine serotypes (i.e. replacement disease). They confirmed that continued surveillance is needed to evaluate future trends, but early signs indicate both a direct and indirect effect of the vaccine in reducing IPD.

RDB activities to address pneumonia are many and varied. In recent months, RDB has collaborated with GAVI to evaluate pneumococcal vaccine impact in South Africa and completed studies on the impact of Hib vaccine. A clean burning cookstoves project in rural western Kenya continues to gather data that will help local health officials and global partners assess use of these stoves as a strategy to reduce indoor air pollution and help prevent pneumonia. To help build in-country capacity for laboratory activities, laboratory field staff from all 6 IEIP and 4 NIC sites have received training at CDC and many will also receive on-site trainings, as necessary. Laboratory trainings and assessments for WHO regional labs may also be offered. A manual to guide assessment of Hib vaccine and PCV impact in developing countries developed by RDB in partnership with WHO is being successfully used.

At present, little is known about how well PCV is going to perform in the areas of the world where the vaccine is needed most because the epidemiology of pneumococcal disease in low and middle-income countries is different from that of wealthier countries and the currently available PCV formulations were licensed based on immunogenicity data (rather than trials with clinical outcomes). In addition, because of the high cost of PCV, many countries are introducing the vaccine with a reduced dose schedule, and the effectiveness of such schedules is unknown.

According to Moore, “Preliminary data from studies in South Africa, Brazil, and Uruguay provide reassuring evidence that in most children, the vaccines are highly protective against disease caused by the serotypes included in the vaccines.” However, Moore cautions, saying “Data from South Africa showing a lower than expected effectiveness among HIV-infected children have already led to a policy change in that country—an additional dose in the routine schedule for HIV-infected children. We will have to do more research to better understand PCV impact and its effectiveness—especially in low-income countries.”

Already, countries in Latin America, Africa and Asia have introduced PCV into their routine immunization schedules and within the next few years, a number of other countries are expected to change their immunization policies to include PCV. RDB’s ongoing work with partners and ministries of health in geographically diverse countries such as Malawi, Kenya and Mozambique will provide important evidence for the introduction and sustained use of PCV globally.
Kathy Tatti is the recently elected president of the CDC Chapter of Sigma Xi. The 125 year old international honor society of science and engineering, whose members are elected based on their research potential or achievements focuses on facilitating public understanding of science, enhancing the health of the research enterprise and engaging in transformational education. Kathy is working with CDC’s 90 members to promote these scientific objectives by annually sponsoring a vaccine dinner club at CDC, hosting a scientific lunch and learn program and working with the bioinformatics seminar series. The group annually awards the Walter R. Dowdle Award for Achievement in Public Health Science. DBD’s Sandy Martin is the group’s secretary. Learn more about Sigma Xi at http://intranet.cdc.gov/od/sigmaxi/index.htm

Elizabeth Zell was recently in Johannesburg, South Africa working on two observational studies to assess the impact of pneumococcal conjugate vaccine. One evaluates the impact for invasive pneumococcal disease and the other evaluates the impact for presumed bacterial pneumonia. While there, Elizabeth gave a seminar on missing data and discussed multiple imputation as the best option for dealing with missing data to a group of medical officers. Elizabeth has been invited to give a course on the analysis of missing data at the Second Joint Biostatistics Symposium in Beijing, China in July.

Gina Mootrey was a representative to the March 2012 International Conference on Emerging Infectious Diseases (ICEID) Scientific Program Committee, co-convener of 2 panel sessions, an abstract reviewer, and member of the Leaders Program Review Panel that awards travel and conference grants to representatives from resource-limited countries to attend the conference in an aim to enhance infectious disease prevention globally. The conference brings together public health professionals to exchange scientific and public health information on global emerging infectious disease issues. Active Bacterial Core pneumococcal surveillance data was featured in 8 oral and poster presentations.

Rana Hajjeh attended the April Nigerian National Vaccine Summit in Abuja, Nigeria. The high level meeting of national and international delegates, including the First Lady of the Federal Republic of Nigeria that was organized to join forces with the international community to expand vaccine access nationwide with the goal of achieving universal vaccine coverage for all Nigerian children by the year 2015. Over one million Nigerian children under age 5 die annually from vaccine-preventable diseases.

Amanda Cohn, Rana Hajjeh, and Chris Van Beneden participated in the WHO annual NUVI meeting (New and Underutilized Vaccines) meeting in Marrakech, Morocco in May. Chris presented the talk “Measuring the impact of Streptococcus pneumoniae and Haemophilus influenzae type b conjugate vaccination: An introduction to WHO’s Vaccine Impact Manual” and Rana was part of an expert panel that discussed vaccine introduction in low middle income countries. See photo at right.

The Epidemic Intelligence Service (EIS) hosted its 2012 annual scientific conference for the national and international public health community in April in Atlanta. DBD recruited and matched with four new EIS Officers. Completing the two year post-graduate training program of service and on-the-job learning in the practice of applied epidemiology in the Respiratory Disease Branch are Alicia Demirjian, a graduate of the American University of Beirut and Aaron Harris, a graduate of Tufts University while Hajime Kamiya, a graduate of the Mie University School of Medicine and Stephen Ko, a graduate of the Medical College of Georgia will be stationed in the Meningitis and Vaccine Preventable Diseases Branch.

DBD staff supports a global health emergency—Polio Eradication. Since April, Stephen Hadler has been working in the Polio Eradication Emergency Operations Center (EOC) as Team Lead for the Eastern Mediterranean Region helping to guide CDC support for Pakistan and Afghanistan to implement emergency action plans to eradicate polio. Steve recently spent a week in Afghanistan where CDC is working to hire expert national consultants, funding key strategies to reduce polio in high risk southern districts, and on a USAID funded project to improve routine immunization. Steve says about the experience, “It was encouraging to see the unwavering dedication of people from all over the world in Afghanistan to work on eradicating polio—in spite of the constraints and challenges related to security, tribal and trust issues affecting delivery of vaccines in this region of the world—it’s not easy work. It is rewarding for me to use whatever skills I can to help make a difference both in the CDC EOC and in the field.” In Pakistan, CDC is expanding the N-STOP program, deploying experts to support WHO Pakistan staff and has plans to deploy up to 50 Pakistan FETP trainees to Pakistan’s highest risk districts in 2013. Other staff from DBD have also been involved on the polio eradication efforts. Sarah Meyer (MVPDB) made two trips – to DRC Congo and Burkina Faso – and Cindy Hatcher (MVPDB) made a trip to DRC Congo.
What's the Buzz...

**Claressa Lucas**, a microbiologist in the *Legionella* Lab was troubled that her little urban garden in non-incorporated DeKalb County was not yielding the harvest she hoped for….so she ordered some honey bees from a local apiary—through the U.S. mail. The bees rescued her garden and now she proudly shares a bounty of produce along with honey, beeswax, propolis and pollen from 4 beehives with family and friends. In the process, of growing her garden, Claressa became a real beekeeper and 4 year member of the Metropolitan Atlanta Beekeepers Association. So when a swarm of honeybees occupied CDC Health Rider Donnie Powell’s Harley-Davidson bike one afternoon last spring….people knew just who to call. Claressa came to the rescue and saved CDC staff parked on the top deck of building 16 from an afternoon of honey bee terror. Read the full story: [http://intranet.cdc.gov/ecp/snapshot/large.asp?imageType=1&chronicalID=8985E53B-9B24-4F](http://intranet.cdc.gov/ecp/snapshot/large.asp?imageType=1&chronicalID=8985E53B-9B24-4F)

**Vaccine News**

**Tdap Vote: Streamlining the Adult Recommendation**

In February 2012, ACIP voted to recommend that all adults aged 19 years and older, who have not yet received a dose of Tdap, should receive a single dose. Tdap can be administered regardless of interval since last tetanus or diphtheria-toxoid containing vaccine. After receipt of Tdap, persons should continue to receiveTd for routine booster immunization against tetanus and diphtheria, according to previously published guidelines.

Providers should not miss an opportunity to vaccinate persons aged 65 years and older with Tdap. Therefore, providers may administer the Tdap vaccine they have available. When feasible, Boostrix (GSK) should be used for adults 65 years and older; however, either vaccine product administered to a person 65 years or older provides protection and may be considered valid.

**PCV13 Licensed for Adults and Recommended for Immunocompromised Adults**

FDA licensed PCV13 for adults age 50 years and older in December 2011. At its February 2012 meeting, the Advisory Committee on Immunization Practices (ACIP) reviewed the evidence for the use of PCV13 in adults but did not vote on recommendations for its use in adults. Two critical data elements are needed to fill the gaps in evidence that are required to inform an ACIP vote on routine use of PCV13 among adults: (1) results from a large clinical trial underway in the Netherlands that is studying the effectiveness of PCV13 against pneumococcal pneumonia among adults; and (2) data that will tell us if use of the vaccine in children also prevents disease among adults. An ACIP recommendation is not needed for a clinician to administer PCV13 to adults according to its FDA-approved indication. Physicians can use the vaccine for people 50 and older consistent with the labeled indication.

On June 20, 2012, ACIP voted to recommend that adults 19 years of age or older with immunocompromising conditions, functional or anatomic asplenia, CSF leaks or cochlear implants, and who have not previously received PCV13 or PPSV23 receive a single dose of PCV13 followed by a dose of PPSV23 at least 8 weeks later. They also voted to recommend that adults 19 years of age or older with immunocompromising conditions, functional or anatomic asplenia, CSF leaks or cochlear implants, and who have previously received one or more doses of PPSV23 receive a dose of PCV13 one or more years after the last PPSV23 dose was received. For those that require additional doses of PPSV23, the first such dose should be given no sooner than 8 weeks after PCV13 and at least 5 years since the most recent dose of PPSV23. Current recommendations for PPSV23 for adults 19 years of age or older with immunocompromising conditions remain unchanged.

**Change in Administration for Anthrax Vaccine Absorbed**

Data from CDC’s Anthrax Vaccine Research Program (AVRP) provided the evidence for FDA approval in May of changes to the label for pre-exposure use of anthrax vaccine adsorbed (AVA, BioThrax). Under the new 3-dose primary series recommendation, AVA will safeguard 66% more personnel in one-third the time with an anticipated 50% reduction in local adverse events, and will require only half the number of doses compared with the original licensed schedule. It will also provide a significant cost reduction per schedule. FDA approval of a 3-dose primary series for AVA (BioThrax) represents the successful culmination of this CDC program. DBD/MVPDB will continue to work with the AVA manufacturer to explore additional reductions in the booster schedule. The Microbial Pathogenesis and Immune Response (MPIR) Laboratory and Brian Plikaytis from the Statistics Office made significant contributions to this research.

OD New and Staff Notes (continued)...

**DBD Responds to Pertussis Epidemic – Washington, 2012** - On April 3, 2012 Washington’s Secretary of Health Mary Selecky announced that pertussis had reached epidemic levels in Washington. In Washington, there have been 2,786 cases reported statewide through June 30, 2012, compared to 201 reported cases in 2011 during the same time period. DBD has been assisting in the response to this epidemic through an Epi-Aid during May with continued surveillance and epidemiological support. DBD, in collaboration with NCIRD’s Health Communication Science Office, has been providing communications and education support to Washington by creating and editing PSAs, hosting a continuing education webcast, and conducting ethnic media round tables, among other efforts. A satellite radio media tour is planned for Washington and 4 other high incidence states during the week of July 23. More information on Washington’s epidemic is available at www.doh.wa.gov.
Communications

CDC and Medscape


New Podcasts

Hear Kathleen Dooling discuss the facts about pneumonia, preventive steps, and the need to stay up-to-date on vaccinations in her podcast on preventing pneumonia at http://www2c.cdc.gov/podcasts/player.asp?f=8623984.

Leonard Mayer has recorded a discussion of invasive meningococcal disease based on a study about invasive meningococcal capsular group Y disease in England and Wales, which appears in the January 2012 issue of CDC’s journal, Emerging Infectious Diseases (www.cdc.gov/eid). Listen to Leonard’s podcast at http://www2c.cdc.gov/podcasts/player.asp?f=8623648.

Pertussis Continuing Education Course

Coughing up the Facts on Pertussis – Emerging Trends and Vaccine Recommendations was offered on May 30, 2012 as a Current Issues in Immunization NetConference. Stacey Martin (DBD/MVPDB) was the speaker and Andrew Kroger (ISD/EIPB) was the moderator. The course is available for viewing at http://www.cdc.gov/vaccines/ed/ciinc/Pertussis.htm.

World Meningitis Day Twitter Chat

On April 24 NCIRD joined ABC News’ senior health and medical editor Dr. Rich Besser for a live Twitter chat. During the chat – which coincided with World Meningitis Day – DBD answered questions about meningitis and meningococcal vaccine hot topics. Many partners joined in this conversation, which typically results in more than 4.5 million impressions.

Get Smart About Antibiotics Week 2012

Darcia Johnson was the featured speaker for the spring 2012 NCIRD Director’s Call discussing plans for the upcoming Get Smart About Antibiotics Week (November 12-18, 2012) activities. This year’s activities will include release of a new 30 second TV spot targeting mothers of young children. The spot was developed in collaboration with the Oakridge Research Institute for Science and Education (ORISE) and the group is collaborating with Canada’s National Collaborating Centre for Infectious Diseases (NCCID) and the European Centre for Disease Prevention and Control (ECDC)

New Meningococcal Disease and Meningitis Websites

New websites have been launched for meningococcal disease and meningitis. These user-friendly websites provide a better experience for those seeking information about either topic. You can view the new websites at http://www.cdc.gov/meningococcal/index.html and http://www.cdc.gov/meningitis/index.html.

George Nelson, a former EIS Officer with RDB, recorded a podcast discussing the relationship between pneumococcal pneumonia and Pandemic H1N1. Listen to this Emerging Infectious Diseases series podcast at http://www2c.cdc.gov/podcasts/player.asp?f=8624137.

Save the Date

Get Smart
Know When Antibiotics Work
November 12-18, 2012
www.cdc.gov/getsmart

World Pneumonia Day
Fight Pneumonia Save a Child
November 12, 2012
www.worldpneumoniaday.org
Can you spot the DBD staff who helped raise funds for Children's Healthcare of Atlanta in The Color Run on May 31st? A one of a kind experience—the run was less about speed and more about enjoying a color crazy day with friends and family. At each kilometer of the 3 mile course that was in and around the Piedmont Park neighborhood, runners and walkers were sprayed with a 100% natural and safe special “elf made” recipe of magical color dust. At 1k yellow, at 2k blue, at 3k green, at 4k pink and at the 5k finish line everyone was covered in a color extravaganza. Look for Pam Cassiday, Amanda Faulkner, Cindy Hatcher, Lauri Hicks, Stacey Martin, Alison Patti, Tami Skoff, Emily Weston and Jonathan Wortham in this photo taken just after they made it across the finish line!

**Featured Publications**


CDC. *Updated recommendation for use of tetanus toxoid, reduced diphtheria toxoid and acellular pertussis (Tdap) vaccine in adults 65 years and older – Advisory Committee on Immunization Practices (ACIP), 2012*. MMWR 2012;61(25):468-70.


**2012 Epi-Aids and Investigations**

Pertussis epidemic – Washington, May 2012. The team went out to assist the Washington State Department of Health with characterizing the current pertussis outbreak and implementing further prevention and control measures.