On October 7th, 2011, the Johns Hopkins Vaccine Initiative (JHVI) hosted the fourth annual Vaccine Day at the Johns Hopkins Bloomberg School of Public Health. JHVI was pleased to host Dr. Anne Schuchat, MD (RADM, USPHS), Assistant Surgeon General, United States Public Health Service, Director, National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention.

Vaccine Day began at 12:00pm in Sommer Hall with welcome by Ruth Karron, M.D., Director of the Johns Hopkins Vaccine Initiative and an introduction by the Dean of the School of Public Health, Michael Klag, MD, MPH.

Dr. Schuchat’s keynote address was titled “Magic bullets and smoking guns, flying pigs and sitting ducks: What can we learn from the past for the new Decade of Vaccines?”

Following the keynote, an expert panel moderated by Neal Halsey, M.D. discussed issues surrounding vaccine research and implementation.

The guest panel included former students:

**Anne Bailowitz, MD, MPH**
Assistant Commissioner, Clinical Services
Baltimore City Health Department

**Angelia Eick-Cost, PhD, ScM**
Special Studies Lead Armed Forces
Health Surveillance Center

**T. Christopher Mast, PhD, MSc**
Director and Infectious Disease Area
Lead Department of Epidemiology
Merck Research Laboratories

**Daniel Salmon, MPH, PhD**
Director, Vaccine Safety, National Vaccine Program Office, Office of Public Health and Science, US DHHS

Following the presentation and panel discussion, Vaccine Day moved to Feinstone Hall for the faculty, staff and student poster session and reception. 34 posters were submitted for Vaccine Day 2011 showcasing work from four departments, including 18 student posters. The posters highlighted the breadth of vaccine research being conducted at the School, and described pre-clinical studies, phase I and II clinical trials, cost effectiveness studies, policy analysis, and implementation studies. Thirteen posters submitted were eligible for the student poster contest.
Vaccine Day 2011 Poster and Photo Contest Winners

Prizes were awarded for the three most outstanding student posters:

**First Place: Barbara Badman** (right) "Investigating the Genotypic Distribution of High-Risk Human Papillomavirus among Women in Northern Tanzania in an Effort to Determine Vaccine Efficacy"

**Second Place: Cailin Deal** "The role of the Influenza A Virus M2 protein extracellular domain in virus replication and on the induction of broadly protective antibodies"

**Third Place: Kyla Hayford** "Validating measles vaccination coverage estimates using an oral fluid biomarker: Preliminary findings from a population-based study in rural Bangladesh"

Please see here for a list of all abstracts submitted.

2011 Vaccine Day Photo Contest

Photos submitted in advance of the Decade of Vaccines photo contest were judged by JHSPH faculty for best illustrating the impact of vaccines on public health.

**First Place: Kyla Hayford** (above) For an immunization campaign day in Bangladesh, this volunteer loads his bike with coolers full of measles and polio vaccines and delivers them to each community.

**Second Place: Laveta Stewart** (below) NNIPS field staff members volunteered in large numbers to receive their influenza immunization.

**Third Place: Andrea Feller** (left) In the Matlab research area of ICDDR,B, the Community Health Research Worker (CHRW) holds fixed-site clinics in her house where she administers EPI vaccines. In this photo the CHRW is preparing to administer the vaccines to an infant. Educational posters can be seen hanging on the walls.
WHO Collaborating Center for Vaccine Epidemiology and Evaluation at JHSPH

The World Health Organization has established a Collaborating Center for Vaccine Epidemiology and Evaluation at the Johns Hopkins Bloomberg School of Public Health, Department of International Health. Faculty, students and staff of the Bloomberg School of Public Health will work with colleagues in the Department of Immunization, Vaccines and Biologicals at WHO and with colleagues at PAHO on the following activities:

The Collaboration intends to:

1. Support, collaborate on, or conduct systematic analysis of vaccine-related scientific evidence;
2. Provide technical assistance and support training on the design, conduct and analyses of vaccine trials and evaluation in the pre- and post-licensure phases;
3. Support, collaborate on, conduct, and/or provide training to conduct epidemiological studies to develop and improve strategies for optimal safety and effectiveness of vaccines, with an emphasis on measles and dengue viruses.
4. Build capacity for vaccine research in resource-poor settings, through training in areas such as systematic literature review and/or good clinical practice (GCP).

Collaborating Center for Vaccine Epidemiology and Evaluation

For more information, see the JHVI website.

“In addition to ongoing projects related to safety assessments for dengue virus vaccines and assessment of coverage with measles vaccine, we will be working on additional projects related to global coverage with influenza vaccines.”

-Dr. Ruth Karron

Director, Johns Hopkins Vaccine Initiative (JHVI)

JHSPH Department of International Health 50th Anniversary Seminar

The Institute for Vaccine Safety, the Center for Immunization Research and GDEC sponsored a 50th Anniversary seminar on November 9th, 2011 with Gareth Williams, Chair of the Jenner Trust, Dr. Jenner’s House and Professor, University of Bristol. The seminar, during the Special Topics in Vaccine Science Seminar, was in support of research Dr. Williams has completed on Edward Jenner and the development of the smallpox vaccine, described in his Angel of Death: the Story of Smallpox, shortlisted for the Wellcome Book Prize 2010 (all proceeds to Dr. Jenner’s House). Dr. Williams described the development of the smallpox vaccine and linked the anti-vaccine movement through history to the current anti-vaccine movement in America and the UK.

A video of the seminar is hosted on the Johns Hopkins Vaccine Initiative website here.
Robert E. Black, MD, MPH, is a recipient of the Prince Mahidol Award in the field of Public Health, which recognizes “outstanding contribution in the field of public health for the sake of the well-being of the peoples.” Black, who is chair and Edgar Berman Professor in International Health at the Johns Hopkins Bloomberg School of Public Health, is being recognized for his outstanding work on zinc supplementation. His studies in Bangladesh, India, Peru and Zanzibar demonstrated that daily zinc supplementation significantly reduced the severity of diarrhea and pneumonia.

Throughout his career, Black has focused his research and activities on reducing the unnecessary deaths of children worldwide from infectious diseases and malnutrition. Black shares this year’s award with Ananda S. Prasad of Wayne State University and Kenneth H. Brown of the University of California at Davis.

The $50,000 prize will be conferred on the recipients by His Majesty the King of Thailand Bhumibol Adulyadej, at a ceremony in Bangkok on January 26, 2011.

The Prince Mahidol Award was established in honor of the late Prince Mahidol of Songka, the Royal Father of His Majesty the King of Thailand. Prince Mahidol modernized medical services and education in Thailand and is known to the country as the “Father of Modern Medicine and Public Health.”

“The Prince Mahidol Award is a tremendous honor and well-deserved recognition of Bob Black's contributions and commitment to improve the lives of children worldwide,” said Michael J. Klag, MD, MPH, dean of the Johns Hopkins Bloomberg School of Public Health.

Black's research interests include field trials of vaccines, micronutrients and nutritional interventions, effectiveness studies of health programs, such as the Integrated Management of Childhood Illness approach, and evaluation of preventive and curative health service programs in low- and middle-income countries. He currently has active projects in Bangladesh, Ethiopia, India, Peru, Uganda and Zanzibar. He focuses on using evidence in policy and programs, including estimates of burden of disease, the development of research capacity and the strengthening of public health training.

Trained in internal medicine, preventive medicine, infectious diseases and epidemiology, Black has served as a medical epidemiologist at the Centers for Disease Control and Prevention and worked at institutions in Bangladesh and Peru on research related to childhood infectious diseases and nutritional problems. As a member of the U.S. Institute of Medicine and advisory bodies of the World Health Organization, the International Vaccine Institute, and other international organizations, he assists with the development of policies intended to improve child health.

Alfred Sommer, MD, MHS, professor and dean emeritus of the Bloomberg School, received the Prince Mahidol Award in 1997 for his vitamin A discoveries.

Reprinted from the JHSPH Public Health News Center

World Pneumonia Day, November 12, 2011

November 12th marked the third annual celebration of World Pneumonia Day (WPD). Pneumonia is the world’s leading killer of children under five. It takes the life of one child every 20 seconds – that’s more than AIDS, measles and malaria combined. WPD puts a spotlight on the problem of childhood pneumonia for the world’s stage.

In just three years, WPD has truly become a global phenomenon with dozens of events occurring in over 20 countries this year. International Vaccine Access Center (IVAC) supported the efforts of the Global Coalition against Child Pneumonia and helped to lead a successful digital campaign, which resulted in the production of fantastic resources like the WPD video and infographic.

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IVAC also coordinated the 2011 Small Grants for World Pneumonia Day Advocacy Program which, through partnerships with the GAVI Alliance, the Best Shot Foundation and the Global Alliance for Clean Cookstoves, provided support for passionate advocates to hold events on WPD where childhood pneumonia has the greatest impact.

Just prior to WPD, IVAC published the 2011 Pneumonia Progress Report. The annual report examines data on several key pneumonia interventions – including exclusive breastfeeding, access to a health care facility, antibiotic treatment and vaccination against pneumonia’s four leading causes – in the 15 countries that account for three-fourths of all child pneumonia deaths.

An animated version of the Progress Report can be viewed here.

IVAC faculty and staff were also vital in spreading awareness about childhood pneumonia on and around World Pneumonia Day through participation in blogger calls, blog pieces and media interviews. Dr. Katherine O’Brien, M.D. contributed a blog about her own personal experience with pneumonia that was published on the Coalition website and Results UK. IVAC’s Director of Epidemiology, Dr. Daniel Feikin, M.D. appeared on an ABC News segment with Dr. Richard Besser and contributed a blog about the impact pneumococcal conjugate vaccine (PCV) introduction in Kenya, where he had worked previously.

Lois Privor-Dumm, IVAC’s Director of Alliances and Information, wrote a blog for Disruptive Women in Health Care about the creativity of WPD events and outreach. Executive Director of IVAC, Dr. Orin Levine debunked the Top 5 Pneumonia Myths in a Huffington Post blog and contributed to a PBS News Hour report by Ray Suarez, which provided an update on pneumonia prevention in Nicaragua a year after they rolled-out PCV, through an interview.

Katherine O’Brien Receives Receive Presidential Early Career Award

October 14, 2011 at the Museum of Natural History in Washington, DC.

Dr. Katherine O’Brien, M.D., M.P.H., was among 94 researchers honored by President Obama in October as they received the Presidential Early Career Awards for Scientists and Engineers, the highest honor bestowed by the United States government on science and engineering professionals in the early stages of their independent research careers.

O’Brien is a pediatric infectious disease physician, an epidemiologist and a vaccinologist with the Bloomberg School’s departments of International Health and Epidemiology. She leads the Infectious Disease Prevention group in the School’s Center for American Indian Health, where she conducts clinical trials of vaccines for diseases of importance to American Indian tribes.

She also serves as deputy director of the International Vaccine Access Center (IVAC). Her work domestically and internationally has focused on vaccine-preventable childhood illnesses including epidemiologic and vaccine studies of pneumococcal disease, rotavirus, Haemophilus influenzae, respiratory syncytial virus and influenza.
Vaccine Internship Experience at WHO (VIEW) Fall 2012 Internships in Geneva

The Johns Hopkins Vaccine Initiative 2012-2013 Vaccine Internship Experience at WHO (VIEW) internship descriptions and applications are now available.

The VIEW Scholars Program is funded by the Johns Hopkins Vaccine Initiative. The objective of the VIEW Scholars Program is to allow JHSPH graduate students to work with mentors in the Department of Immunization, Vaccines and Biologicals at the World Health Organization (WHO) to gain experience in vaccine research, policy, or programs of global importance.

Specific projects will vary, but might include analytic work or specific assignments that contribute to the development of global immunization policy recommendations, the strengthening of national decision making processes for immunization, vaccine delivery, financing, or safety monitoring, or vaccine preventable disease surveillance.

Three internships will be offered during the 2012-2013 academic year. VIEW Scholars will receive $7,500 to be used for travel, accommodation and expenses while in Geneva. The VIEW Scholars Program is restricted to full-time master’s and doctoral students in good standing enrolled at the Johns Hopkins Bloomberg School of Public Health. As this internship is intended to complement course work taken at the School of Public Health, all applicants are required to have completed at least one year of coursework by September 2012, including a minimum of three terms of biostatistics and one term of epidemiology.

Applicants must anticipate enrollment as full time students during their internships (the first and second quarters of the 2012-2013 academic year).

JHVI and WHO will arrange internships on vaccine-related topics of global importance that will provide opportunities for students to apply skills acquired at JHSPH. However, it is essential that WHO has the flexibility to adjust internships to respond to critical or emerging public health needs. Following the identification of VIEW Scholars, JHVI and WHO will assign internships based on student interest and experience and WHO programmatic needs.

All applications and recommendations are due Friday January 27, 2012 at 5:00pm. Contact Amber Bickford Cox with questions acox@jhsph.edu or jhvi@jhsph.edu

Johns Hopkins Malaria Research Institute

On November 16, the Johns Hopkins Bloomberg School of Public Health hosted “The Forever War: Malaria versus The World,” a half-day symposium calling attention to the global burden imposed by malaria. The event, held at the New York Academy of Science in New York City, also marked the tenth anniversary of the Johns Hopkins Malaria Research Institute, a state-of-the-art research facility at the Bloomberg School of Public Health focused on a broad program of basic science research to treat and control malaria. Worldwide, malaria afflicts hundreds of millions of people.

The symposium highlighted some of the groundbreaking research conducted by the Johns Hopkins Malaria Research Institute and other scientists working to end malaria. Nobel Laureate Peter Agre, director of the Johns Hopkins Malaria Research Institute, moderated the presentation, which included discussions of interventions in Macha, Zambia that have reduced malaria locally by 90 percent, the development of a genetically modified malaria-resistant mosquito, and understanding of genetics of the parasite that causes malaria.

The Honorable Michael Bloomberg provided the symposium’s opening address. Jeffrey D. Sachs, director of the Earth Institute and professor at Columbia University, provided the closing keynote address. Michael J. Klag, dean of the Bloomberg School, and Ellis Rubinstein, head of the New York Academy, also delivered remarks.

More info at JHMRI.
Researchers Develop Method to Better Estimate Vaccine Coverage

Immunizations are a valuable tool for controlling infectious diseases among populations both in the U.S. and globally. Routine immunizations and supplemental immunization activities, such as immunization campaigns, are designed to provide immunization coverage to entire populations. Current measurements used to determine the success and rates of immunization can be flawed and inconsistent. According to a new study led by researchers from the Johns Hopkins Bloomberg School of Public Health, estimates of vaccination coverage can be significantly improved by combining administrative data with survey data. The results are featured in the Oct 2011 issue of PLoS Medicine.

“Reliable estimates of vaccination coverage are key to managing population immunization status,” said Justin Lessler, lead author of the study and an assistant professor with the Bloomberg School’s Department of Epidemiology. “Currently, the performance of routine and supplemental immunization activities is measured by the administrative method, which leads to coverage estimates that are often inconsistent with the proportion reporting vaccination in cross-sectional surveys. Furthermore, administrative coverage does not tell you how many people are systematically missed by vaccination activities. We estimated that the size of the population never reached by any activity was high in Sierra Leone and Madagascar, 31 percent and 21 percent respectively. But it was much lower in Ghana, only 7 percent.”

The widely used administrative method divides the number of doses distributed by the size of the target population. Lessler, along with colleagues from Johns Hopkins, University of Oxford, Epicentre, and Princeton University developed a method for estimating the effective coverage of vaccination programs using cross-sectional surveys of vaccine coverage combined with administrative data. The method was applied using demographic health survey and administrative coverage data reported to the WHO from measles vaccinations in Ghana, Madagascar and Sierra Leone. They found estimates of routine supplemental immunization activities coverage are substantially lower than administrative estimates for Madagascar and Sierra Leone, and only slightly lower for Ghana. In addition, their estimates of routine coverage are, in general, lower than WHO and United Nations Children’s Fund (UNICEF) estimates.

“This method not only attempts to correct coverage estimates, but also distinguishes between issues of overall coverage and vaccine within activity inefficiencies. For our technique to be useful, countries must have cross-sectional data on vaccine coverage for children across a range of ages, some of an age where they have been exposed to multiple vaccination activities,” said Derek Cummings.

“Estimates of the inefficiency of past vaccination activities and the proportion not covered by any activity allow us to more accurately predict the results of future activities and provide insight into the ways in which vaccination programs are failing to meet their goals,” adds Lessler.

“Measuring the Performance of Vaccination Programs Using Cross-Sectional Surveys: A Likelihood Framework and Retrospective Analysis” was written by Justin Lessler, C. Jessica E. Metcalf, Rebecca F. Grais, Francisco J. Luquero, Derek A. T. Cummings and Bryan T. Grenfell.

This research was supported by grants from the Vaccine Modeling Initiative of the Bill and Melinda Gates Foundation, the Department for Homeland Security, the NIH, the Burroughs Welcome Fund and the Royal Society.

Reprinted from the JHSPH Public Health News Center

Center for Immunization Research, PATH and NIH Evaluate New Malaria Vaccine

The Johns Hopkins Bloomberg School of Public Health Center for Immunization Research (CIR), the PATH Malaria Vaccine Initiative (MVI) and the National Institute of Allergy and Infectious Diseases (NIAID) announced a new collaboration to evaluate a potential malaria vaccine designed to prevent transmission of the disease from mosquitoes to humans.

CIR, MVI and NIAID are currently working together to conduct a Phase 1 clinical trial in healthy adults to assess the safety and immunogenicity of the protein Pfs25. Pfs25 is a transmission-blocking vaccine (TBV) that aims to block the transmission of malaria from mosquitoes to humans by preventing the malaria parasite from developing in the mosquito. While such vaccines do not directly protect an immunized individual from developing clinical malaria, by preventing the spread of infection by the mosquito, they can reduce the chances that others in the community contract the disease.

"The Pfs25 vaccine and other transmission-blocking vaccines are unique in their approach in that they target a key..."
(Continued from Page 8 Malaria Vaccine) stage in the malaria parasite's lifecycle rather than attempting to build immunity to malaria in humans," said Kawsar Talaat, MD, clinical principal investigator and assistant scientist at the Johns Hopkins Bloomberg School of Public Health. "We'll need many tools to bring malaria under control and an effective transmission-blocking vaccine could go a long way toward achieving that goal."

Malaria kills nearly 800,000 people every year, most of them children under the age of 5. Defending against the disease has been challenging because both the parasite and its mosquito host are highly adaptive and have survived for millions of years. A TBV would work synergistically with other interventions such as drugs and insecticides since blocking transmission of the parasite would reduce the pressure on these measures, thereby slowing the development of resistance and thus extending their effectiveness.

"This is the first clinical trial using a transmission-blocking approach supported by MVI," said Ashley Birkett, director of research and development at MVI. "It's the first step in what is typically a long process of evaluation. Nonetheless, we are excited by the potential of TBVs to significantly limit the spread of malaria infection. Eradication of malaria may be decades away, but we believe a successful TBV—used alongside safe and effective drugs, insecticides, bednets and possibly a malaria vaccine that protects the individual against infection—is essential to achieving that goal."

About the PATH Malaria Vaccine Initiative (MVI): MVI is a global program established at PATH through an initial grant from the Bill & Melinda Gates Foundation. MVI’s mission is to accelerate the development of malaria vaccines and ensure their availability and accessibility in the developing world. MVI’s vision is a world free from malaria. For more information, please visit http://www.malariavaccine.org/.

About PATH: PATH is an international nonprofit organization that creates sustainable, culturally relevant solutions, enabling communities worldwide to break longstanding cycles of poor health. By collaborating with diverse public and private sector partners, PATH helps provide appropriate health technologies and vital strategies that change the way people think and act. PATH’s work improves global health and well-being. For more information, please visit http://www.path.org/.

About the Johns Hopkins Center for Immunization Research (CIR): CIR is a leader in vaccine evaluation and Good Clinical Practice (GCP) training. Established in 1985 by Dr. Mary Lou Clements-Mann, CIR is one of the nation’s leading vaccine research centers. CIR investigators primarily conduct Phase I and II clinical trials of new vaccine candidates in the United States and in less-developed countries.

About the National Institute of Allergy and Infectious Diseases (NIAID): NIAID conducts and supports research—at NIH, throughout the United States, and worldwide—to study the causes of infectious and immune-mediated diseases, and to develop better means of preventing, diagnosing and treating these illnesses. News releases, fact sheets and other NIAID-related materials are available on the NIAID website at http://www.niaid.nih.gov/.

Selected Faculty Publications and Faculty in the News

BCG-mediated protection against Mycobacterium ulcerans infection in the mouse.

Scaling up diarrhea prevention and treatment interventions: a Lives Saved Tool analysis.

An open label Phase I trial of a live attenuated H6N1 influenza virus vaccine in healthy adults.

Comparison of LiST measles mortality model and WHO/IVB measles model.
Chen WJ. BMC Public Health. 2011 Apr 13;11 Suppl 3:S33. PMID: 21501452

Rotavirus vaccine and diarrhea mortality: quantifying regional variation in effect size.

Attitudes and beliefs of parents concerned about vaccines: impact of timing of immunization information.
Selected Faculty Publications and Faculty in the News

**Immunization-safety monitoring systems for the 2009 H1N1 monovalent influenza vaccination program.**

**Seroincidence of 2009 H1N1 infection in HIV-infected and HIV-uninfected women prior to vaccine availability.**

**Smallpox virus destruction and the implications of a new vaccine.**

**Estimated economic benefits during the ‘decade of vaccines’ include treatment savings, gains in labor productivity.**

**During the ‘decade of vaccines,’ the lives of 6.4 million children valued at $231 billion could be saved.**

**A call to action for the new decade of vaccines.**

**The future of immunisation policy, implementation, and financing.**


**Biological feasibility of measles eradication.**

**A dynamic landscape for antibody binding modulates antibody-mediated neutralization of West Nile virus.**

**Product development partnerships hit their stride: lessons from developing a meningitis vaccine for Africa.**

**Understanding the role of human variation in vaccine adverse events: the Clinical Immunization Safety Assessment Network.**

**Volunteer challenge with enterotoxigenic Escherichia coli that express intestinal colonization factor fimbriae CS17 and CS19.**

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The cost-effectiveness of supplementary immunization activities for measles: a stochastic model for Uganda.


A single dose of the DENV-1 candidate vaccine rDEN1A30 is strongly immunogenic and induces resistance to a second dose in a randomized trial.

Decay and persistence of maternal dengue antibodies among infants in Bangkok.

Underimmunization at discharge from the neonatal intensive care unit.

Progress in the development of human parainfluenza virus vaccines.

Induction and maintenance of protective CD8+ T cells against malaria liver stages: implications for vaccine development.

Development and clinical evaluation of multiple investigational monovalent DENV vaccines to identify components for inclusion in a live attenuated tetravalent DENV vaccine.

Next-generation dengue vaccines: novel strategies currently under development.

The role of HPV in head and neck cancer and review of the HPV vaccine.

Challenges to mapping the health risk of hepatitis A virus infection.

The cDNA-derived investigational human parainfluenza virus type 3 vaccine rcp45 is well tolerated, infectious, and immunogenic in infants and young children.

Refinement of a human challenge model for evaluation of enterotoxigenic Escherichia coli vaccines.

Causality assessment of serious neurologic adverse events following 2009 H1N1 vaccination.

Comparative evaluation of the antibody in lymphocyte supernatant (ALS) and en- 
zyme-linked immunospot (ELISPOT) assays for measuring mucosal immune responses to Shigella antigens.

Missed clinical opportunities: provider recommendations for HPV vaccination for 11-12 year old girls are limited.

Survey of national immunization programs and vaccine coverage rates in Asia Pacific countries.
Lu C; APECI members, Santosham M. Vaccine. 2011 Nov 7. PMID: 22075085

Pneumococcal sequence type replacement among American Indian children: A comparison of pre- and routine-PCV7 eras.

Impact of More Than a Decade of Pneumococcal Conjugate Vaccine Use on Carriage and Invasive Potential in Native American Communities.

A Combination Vaccine Consisting of Three Live Attenuated Enterotoxigenic Escherichia coli Strains Expressing a Range of Colonization Factors and Heat-Labile Toxin Subunit B Is Well Tolerated and Immunogenic in a Placebo-Controlled Double-Blind Phase I Trial in Healthy Adults.