Johns Hopkins Vaccine Initiative

JHVI’s Mission

The mission of the Johns Hopkins Vaccine Initiative is to promote collaborative and interdisciplinary vaccine research, education, and implementation efforts to improve health worldwide.
Randomized Controlled Vaccine Trials

In 1941, Joseph Asbury Bell pioneered the use of randomized controlled trials in the evaluation of pertussis vaccines.

According to Bell, to determine whether a vaccine confers protection against disease requires obtaining “an injected group identical … with the noninjected group.”
In 2001, Larry Moulton, Kate O'Brien and Mathuram Santosham pioneered the use of group randomization in a pivotal efficacy trial of a pneumococcal conjugate vaccine in American Indian populations.

Group-randomized design can assess the potential effect of the vaccine in the community, measuring reduction in carriage and secondary attack rates.
RSV: Discovery and Prevention

In 1956, Robert Chanock and colleagues isolated respiratory syncytial virus (RSV) from an infant at the Johns Hopkins Hospital.

Currently, Ruth Karron and colleagues are working on vaccines to prevent RSV infection, the most common viral cause of lower respiratory tract disease in infants.
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Polio: Research and Discovery

In the 1940s and 50s, David Bodian, Isabel Morgan and Howard Howe at the Johns Hopkins University identified the three different strains of poliovirus and determined how the viruses enter the spinal cord from peripheral nerves.

Their findings were crucial to the development of polio vaccines.
Polio: Vaccines and Policy

Neal Halsey, John Modlin, and Marshall McBean provided evidence to support changing routine immunization in the United States, showing that inactivated polio vaccine would prevent the rare complications of OPV.

Recent studies with Edwin Asturias in Guatemala are leading toward changes in global polio vaccine strategies.
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Vaccine Safety and Public Confidence

The Institute for Vaccine Safety (IVS) promotes disease prevention using the safest vaccines possible.

Neal Halsey, Larry Moulton and other IVS members help guide decision makers and educate physicians, the public and the media about key issues surrounding the safety of vaccines.
Tuberculosis: BCG Efficacy and Prevention

George Comstock conducted trials of the BCG vaccine in U.S. children and determined the vaccine to be largely ineffective in this population.

This led federal public health officials to decide against vaccinating children in the United States with BCG.
Influenza pandemics are important global causes of mortality, particularly in the world’s poorest populations.

Andrew Pekosz, Kawsar Talaat, Ruth Karron and colleagues are working on the development and evaluation of novel influenza vaccines in preparation for the next pandemic.
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Remembering Mary-Lou Clements-Mann

Mary Lou Clements-Mann was the founder and first director of the Center for Immunization Research.

She was a leader in the evaluation of influenza and HIV vaccines and is remembered for her enthusiasm, her passionate attention to detail and her dedication to vaccine research efforts.

Mary Lou Clements-Mann
September 17, 1946 – September 2, 1998
HIV Infection & Measles Vaccine

William Moss and Diane Griffin are examining the effect of HIV infection on measles and the response to measles vaccination.

Under development is a new vaccine for measles that aims to induce immunity in infants younger than 6 months of age.
Enteric Bacterial Vaccines

David Sack, Robin McKenzie, Edwin Asturias, Lou Bourgeois, Clayton Harro and colleagues are evaluating vaccines against enteric bacterial infections, important causes of diarrhea and malnutrition in children, and of travelers' diarrhea.

Recent studies with a patch-based ETEC vaccine showed a reduction in the occurrence and severity of travelers' diarrhea.
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Pneumococcal Vaccines

Our faculty help bring pneumococcal vaccines to licensure by establishing their safety, immunogenicity, and efficacy in diverse populations.

Pneumo ADIP, led by Orin Levine, accelerated global uptake of these life-saving vaccines by expanding the evidence for use in developing countries and by assuring donor financing to subsidize their purchase.
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Hib Vaccines

Mathuram Santosham, Neal Halsey, Mark Steinhoff, Orin Levine, Kate O’Brien and colleagues have worked globally on studies of Hib vaccines to prevent meningitis and pneumonia in infants.

Johns Hopkins plays a leadership role in the Hib Initiative, a GAVI project to introduce Hib vaccine globally.
Anna Durbin and colleagues are investigating the viral, host and immunologic factors that cause severe dengue illness by characterizing the cellular and humoral responses of volunteers to live attenuated dengue virus vaccines.
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Vaccine Implementation & Access

Research and technical assistance by our faculty to WHO, UNICEF and other agencies help to ensure financing and systems for delivering vaccines safely and effectively, even in the poorest and farthest reaches of the world.
The Cost of Vaccination in the World’s Poorest Countries

David Bishai and colleagues examined the relationship between cost of immunization and coverage levels for DTP vaccine.

“In this set of the world’s poorest countries, the average cost of vaccinating children is lower in countries where more children are immunized.”
Malaria Vaccines

The Johns Hopkins Malaria Research Institute is working toward the development of a malaria vaccine by targeting critical parasite molecules involved in the interaction with the mosquito vector, as well as molecules that mediate the parasite’s infection of humans.
Vaccine Policy and Ethics

Faculty and fellows of the Berman Institute of Bioethics and the Bloomberg School focus on the intersection of social justice and vaccine policy.

A current project examines the social justice implications of setting global funding priorities to include childhood immunization programs in middle-income countries.
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Training the Next Generation of Leaders

The Johns Hopkins Bloomberg School of Public Health offers a comprehensive academic program in vaccinology.

Students have many opportunities to engage with faculty—in the classroom, the laboratory, the clinic and the field.
Takin the Classroom to the Field

Karen Charron, Clayton Harro, Amber Cox and colleagues offer field-based interactive training in the international application of regulations and ethical guidelines to vaccine trial conduct.

To date, more than 1,000 professionals have been trained and GCP-certified in 10 countries in Africa, Asia, South America and Europe.