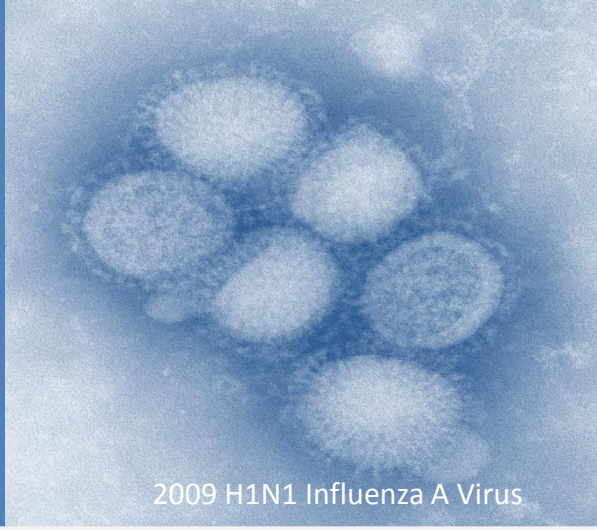
Vaccines Today: Faster Than Ever

Sustained NIH investment enables today's scientists to develop vaccine candidates and vaccines faster than ever.



Polio

- The initial U.S. outbreak of polio occurred in Vermont in 1894.
- Poliovirus was originally identified in 1909, by Karl Landsteiner and Erwin Popper.
- The first human clinical trials began 45 years later, using a vaccine developed by Jonas Salk.

West Nile Virus

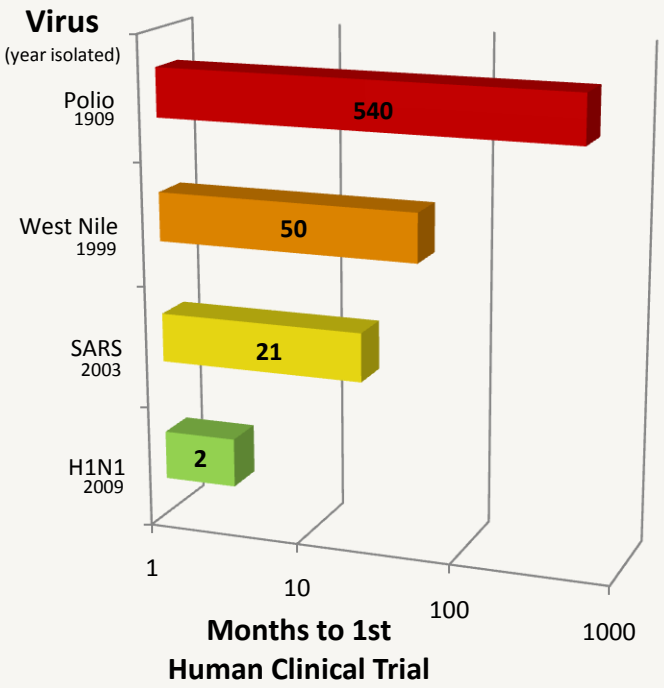
- The first discovery of West Nile Virus in the U.S. occurred in New York, in August, 1999.
- In 2003, a $3 million research grant by the National Institutes of Health (NIH) led to the first human vaccine trial.

SARS

- Discovered in China in November of 2002, the SARS virus was isolated in March, 2003.
- Just 21 months later, the first human clinical vaccine trials began at the National Institute of Allergy and Infectious Diseases (NIAID).

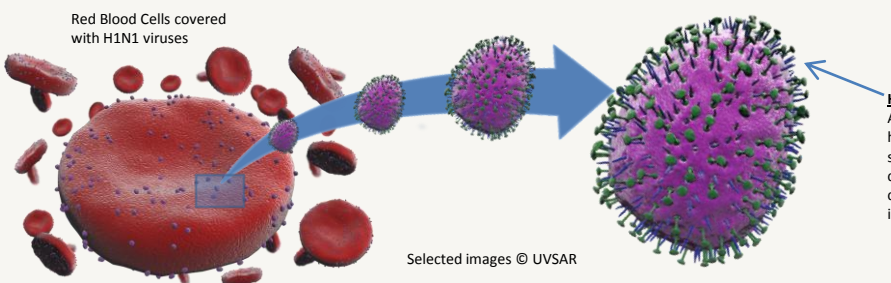
H1N1

- On April 2, 2009, a 5-year old boy in Mexico became the first patient diagnosed with H1N1 influenza.
- Only 2 months later, the NIAID announced that it had commenced human clinical trials for an H1N1 vaccine.



The NIH plays a crucial role in the global response to new viruses. The U.S. has contributed more than two-thirds of all new vaccines approved worldwide in the last 20 years. In the U.S., the NIH is the agency primarily responsible for pandemic influenza research. If the 2009 H1N1 virus mutates to become different from the current vaccine virus, the NIH is prepared to develop enhanced H1N1 vaccines to keep the world population safe.

NIH research on new production methods will further speed the vaccine manufacturing process. Current vaccine technology involves growing the virus in chicken eggs, which is both limiting and time-consuming. With continued investment, the NIH can build more facilities and test more methods to create vaccines through cell-based vaccine development technologies.



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"In the 21st century, disease flows freely across borders and oceans, and, in recent days, the 2009 H1N1 virus has reminded us of the urgent need for action." –U.S. President Barack Obama.

The President's call has been answered by the development of the 2009 H1N1 vaccine. Created at record-breaking speed, the vaccine is the latest example of how the NIH continues to build upon previous breakthroughs to advance the world's public health capabilities.

This is imperative, as immunization is one of the most successful and cost-effective health interventions that prevent disease.

"Over the past several years, the NIAID has conducted a major research effort that builds on long-standing programs related to seasonal influenza in order to improve our preparedness for pandemic influenza," states NIAID Director, Tony Fauci, M.D.

These efforts cannot be overstated, Dr. Fauci continues: "Results from these basic research studies lay the foundation for the design of new antiviral drugs, diagnostics, and vaccines, and are applicable to seasonal and pandemic strains alike."

The National Institutes of Health supports most of the basic research that leads to the development of vaccines. In 2009, the NIH invested more than $200 million in various types of flu research, including H1N1. As the primary funding source for most academic and industrial vaccine projects, the NIH has played a primary role in shortening the timeline of vaccine development. A large proportion of NIH funding goes to academic institutions to conduct basic research, which is a critical element of vaccine development.

The United States has been tremendously successful in vaccine research and development in the last 20 years. Even so, during this time of great success, vaccine development has often been hindered by inadequate investment. This could prevent the discovery of a missing piece of scientific knowledge or technology.

This investment shortage is particularly serious at a time when the costs of vaccine development have continued to increase, due largely to Good Manufacturing Practices (GMP), which were introduced into vaccine production in 1980. GMP standards play the important role of ensuring quality but also drives up the cost of investments in the researchers, clinical trials, facilities, and manufacturing critical to vaccine development. This is one very important reason that continued increases in research funding are essential.

The American Recovery and Reinvestment Act has provided the NIH with $10.4 billion in research funding, but this investment is available only until September, 2010. Without a significant increase in Federal Government investment in FY2011, the NIH will likely face a steep drop in funding.

Speaking on the subject of decreased funding in FY2011, NIH Director Francis Collins has stated, "It's going to be tough, and anybody who has not realized the reality here needs to be prepared for what could be a very difficult time."

Our nation can continue to facilitate vaccine development through sustained, significant increases in our investment in the National Institutes of Health.