

International Partners Work to Prevent Next Pandemic (2008)

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Washington — Most emerging infectious diseases are zoonoses — animal diseases that can be transmitted to people — and most zoonoses arise from wildlife, so anywhere in the world that wild animals and people interact, a new disease can enter the human population.

Diseases that have entered the human population this way include HIV/AIDS, severe acute respiratory syndrome and highly pathogenic H5N1 avian flu.

Google.org, the philanthropic arm of the company behind the world's most popular Internet search engine, is supporting efforts to identify hot spots where such diseases are most likely to emerge and to detect new pathogens circulating in animals and people.

An initial \$14.8 million, announced October 21 as part of the Predict and Prevent initiative, is going to six partnerships working in Africa and Southeast Asia. Their shared goal is to help nations and global organizations for animal and human health learn about and respond to outbreaks before they become global crises.

"Predict and Prevent has adopted a 'one health' approach integrating human, animal and environmental health," Frank Rijsberman, Predict and Prevent program director, wrote October 21 in his Google.org blog. "We focus on knowing where to look for outbreaks of emerging infectious diseases, detecting those outbreaks through digital and genetic approaches, and supporting early warning and quick response."

He added, "These grants will increase our understanding of emerging infectious diseases and generate vast amounts of data, samples, sequences and, hopefully, discoveries."

PANDEMIC SIGNALS

To detect new pathogens circulating in animals and people and acquire early signs of possible pandemics, Google.org grants included \$2.5 million to Columbia University's Mailman School of Public Health in New York City for research to accelerate the discovery of new pathogens and establish molecular diagnostics in "hot spot" countries.

Another grant for \$3 million is going to Children's Hospital Boston in Massachusetts to support the Internet-based disease surveillance initiatives HealthMap and ProMED-mail. The effort will assess emerging-disease reporting systems, expand regional networks in Africa and Southeast Asia, and develop new tools to improve outbreak detection and reporting.

The California-based nonprofit Global Viral Forecasting Initiative, headed by Dr. Nathan Wolfe, received \$5.5 million, with equal funding from the Skoll Foundation in California, to support animal and human

blood-sample collection and analysis in such emerging disease “hot spots” as Cameroon, Democratic Republic of Congo, China, Malaysia, Laos and Madagascar.

“Our mission is to understand how pandemics are born,” Wolfe told America.gov, “to come up with systems to more quickly identify the threats and then to work with other organizations to stop those threats before they become pandemics.”

SAMPLING AT THE INTERFACE

The work is accomplished through a global network of partners — collaborators and field teams, and laboratories where increasingly advanced techniques allow researchers to understand and discover disease agents in completely new ways.

“We think about where in the world do we believe there to be important viruses — what are the hot spots,” Wolfe said. “Then we charge into the hot spots and focus our energy on the interface between humans and animals — hunters, maybe people working in wet markets, wildlife veterinarians — people in close contact with animals. Then we sample at that interface — what’s in the animals, what’s in the humans, and what’s jumping from the animals into the humans.”

Of the many diseases that pass from animals to people, it is not yet easy to determine which are likely to be important.

“We are still at the very beginnings of the science of pandemic prevention, but that doesn’t mean that we are without skills or facilities,” Wolfe said.

“We know, for example, that viruses that are closely related to other viruses that are harmful are probably likely to be important risks,” he said. “We can monitor individuals and see who’s ill and look to see if there are associations between new viruses and illness. We can look to see if new viruses we find are spreading among people, which is a major reason for concern.”