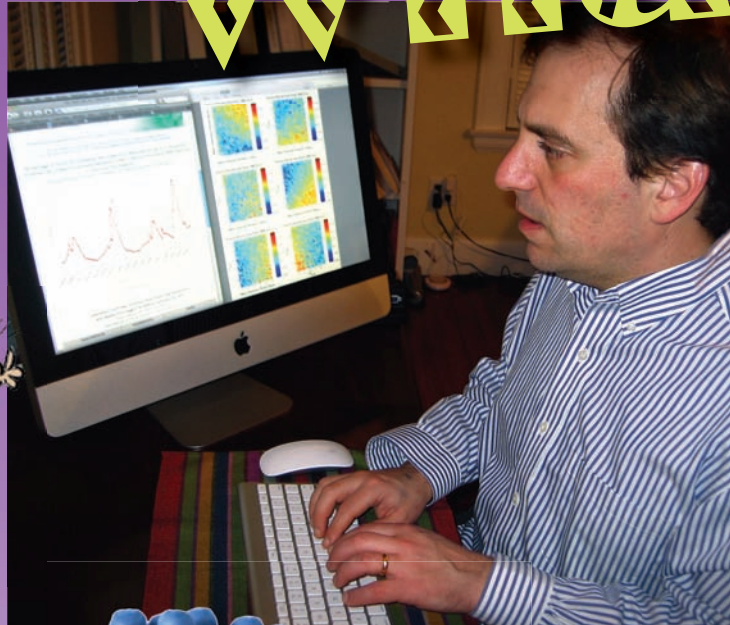


PP The Past Is Present

NOW What?

by Cynthia Levinson

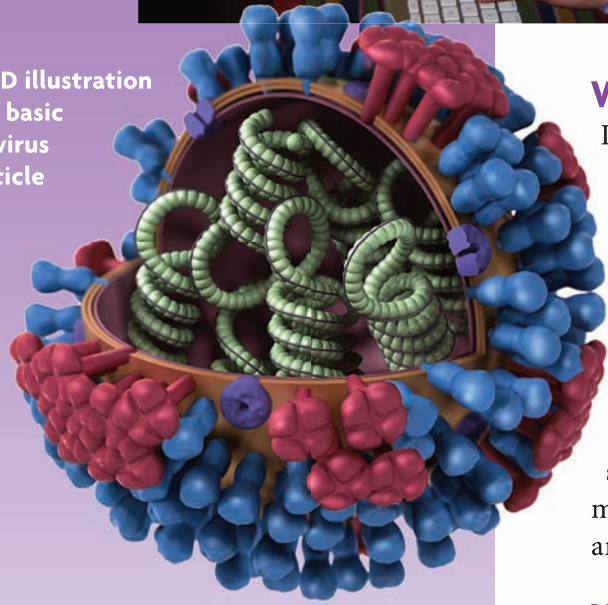
The author interviewed Dr. Marc Lipsitch, Professor of Epidemiology and Director of the Center for Communicable Disease Dynamics, Department of Epidemiology and Department of Immunology & Infectious Diseases at the Harvard School of Public Health. He is shown here analyzing data on his computer.



Good work, Doc.



A 3-D illustration of a basic flu virus particle



What does your work focus on?

I study how infectious diseases spread and how treatment and vaccination can reduce the spread. Recently my work has been in *calibrating* the response to the H1N1 flu.

How do you do that?

You start by thinking about the general principles of controlling a disease. You look for groups most responsible for transmission. With flu, it's schoolchildren. You also identify people who are most likely to get especially sick. These might be different from the people who transmit the disease. You also identify how a disease behaves and which interventions might slow it.

Was H1N1 unusually hard to plan for?

Yes. We (public health agencies around the world and researchers like me) were surprised. We had a range of plans—some for a severe flu and some for a milder pandemic. The threat level of H1N1 remained unclear for months after it began to emerge in April 2009. Some people were getting very sick and even dying, especially in

Calibrating means measuring or figuring out the size of something.



Scientists at the Centers for Disease Control and Prevention wear protective clothing and work under flow hoods to keep germs contained.

CHIEF DOCTOR

As “America’s Doctor,” the Surgeon General works hard to keep you healthy. Although the Surgeon General is not in the military, he or she is an officer who wears the uniform and has a rank of a three-star vice admiral in the U.S. Navy. This practice started in 1798 when Congress created a commissioned corps of doctors for the relief of sick and disabled seamen.

Today, the Surgeon General is appointed by the president of the United States for a four-year term and is responsible for giving Americans the best scientific information on how to improve their health and reduce the chance of illness and injuries. To do this, the Surgeon General’s office, which is part of the U.S. Department of Health and Human Services, directs 6,500 officers of the U.S. Public Health Service Commissioned Corps.

The office recommends healthy eating and exercise habits. The corps also helps victims of natural disasters, such as hurricanes, and disease outbreaks, such as H1N1 flu. Learn more at www.surgeongeneral.gov. —C.L.

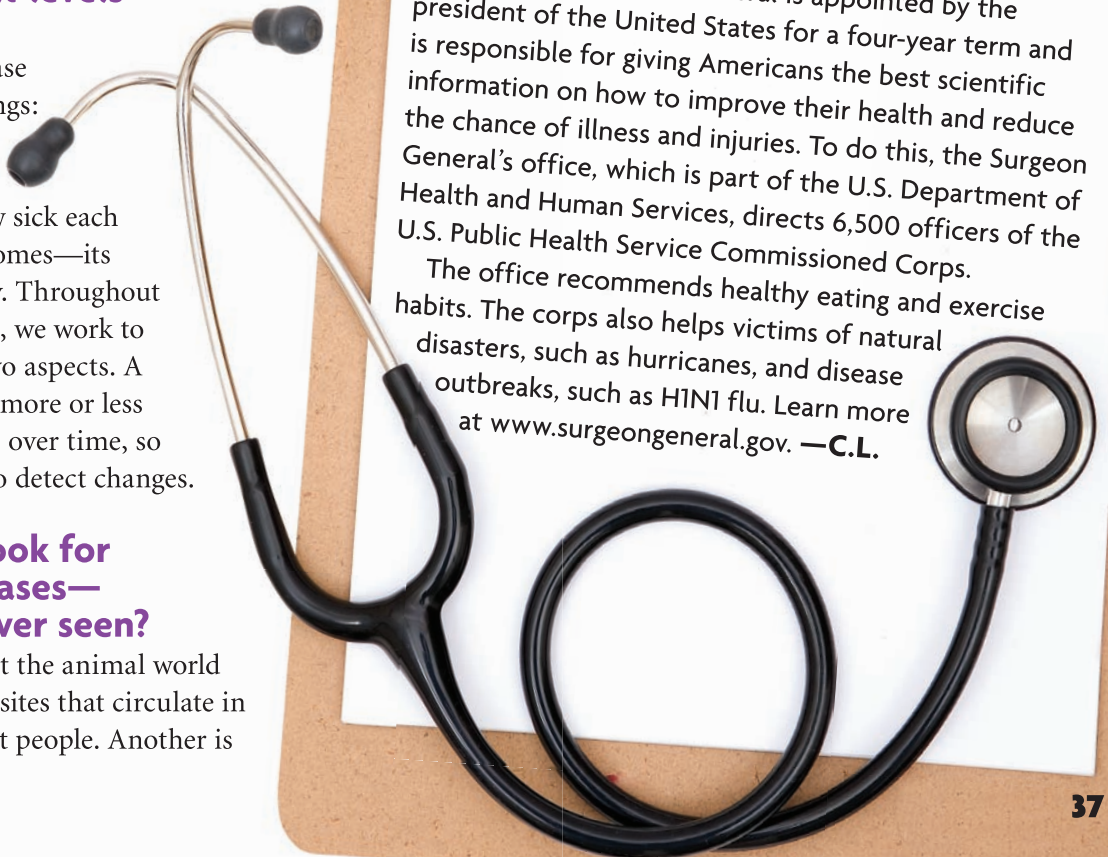
Mexico. Since it appeared that a high percentage of people who caught H1N1 got very sick, officials had to plan for a severe strain. Later, we learned that in Mexico, only the sickest people were detected. Fortunately, H1N1 turned out to be on the milder end of what we first thought.

How are threat levels determined?

The threat of a disease depends on two things: how many people get it—its contagiousness—and how sick each infected person becomes—its virulence or severity. Throughout an emerging disease, we work to understand these two aspects. A disease can become more or less contagious or severe over time, so we also work hard to detect changes.

How do you look for emerging diseases—ones we’ve never seen?

One way is to look at the animal world to assess which parasites that circulate in animals might infect people. Another is



H1N1 FLU PREVENTION



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to look at human populations with severe health problems, such as people with infections that are resistant to multiple drugs. For example, a strain of acinetobacter (*a-sin-e-toe-bacter*), which has come back with soldiers from Iraq, is a problem in some U.S. hospitals because it is resistant to many drugs. So, to predict diseases, you look to the past, at other species, and at human populations. Understanding how nature works is important.

Sometimes half the battle is educating the public about the best way to handle an epidemic outbreak.



I've gotten my shots. How about you?

Let's face it. . .nobody enjoys getting a flu shot, but like 10-year-old Anthony Adams does here, it's best to just wince and bear it!

What methods do you consider for containing a disease?

Options include vaccination, isolation of someone who is already sick, quarantining people who are contacts but not yet sick, and “social distancing”—that is, reducing the chances for transmission, such as by closing schools.

Vaccination, if a vaccine is available, is a long-term measure. You don't have to treat people again until it wears off. Other interventions, such as encouraging people to wash their hands, last only as long as people follow them. Isolation, too, has to be maintained over time, and it disrupts society. We know that closing schools can reduce transmission. For example, the spread of H1N1 dropped over the summer and picked up in the fall. But you would close schools only if a pandemic is severe, since learning stops, and many parents, including health workers, can't go to work. It was hard to tell at the beginning if H1N1 was like seasonal flu or more deadly. The early recom-

mendation was to close schools when cases occurred, but after a few weeks, the recommendation changed. These decisions are not made lightly.

There is a trade-off between doing the best possible thing and doing what can be executed. I think public health agencies did an excellent job in striking that balance during the fast-moving H1N1 pandemic. And we've learned a lot for the next disease that emerges. 🦠

Cynthia Levinson enjoys talking with fascinating people and writing nonfiction for kids.

