

Indiana University

IU research predicts early H1N1 flu peak

Computer modeling says outbreak could be heavy by mid-October, when vaccine will arrive

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Indiana University professor Alessandro Vespignani talks with colleagues on a conference call about H1N1 flu predictions in April. Chris Meyer | Indiana University

The good news from the H1N1 prediction team in the Indiana University School of Informatics is that flu strain isn't mutating, as health officials feared, and it remains mild, as influenza goes.

But the worrisome aspect to the latest computer modeling on the spread of the flu is that it's going to arrive in peak numbers earlier than previous projections, and, likely, earlier than most people can get immunized.

"If we are in a race against time, and it appears that we are, the question is, what can we do to delay the peak?" asked Alessandro Vespignani, head of the Global Epidemic and Mobility modeler at IU.

Anti-viral drugs, such as Tamiflu, could help, the IU researcher said. But more practical and more important is the tactic of social distancing — "you wash your hands often, you don't shake too many hands, you try to not go into the work place if you are sick," he said.

“If we can buy just one month, we could really push back the epidemic until the population is vaccinated,” Vespignani said. “If we could do that, there is a very good chance the epidemic will have a very low impact.”

The GLEaM team at IU is one of the world’s pre-eminent modelers of the potentially catastrophic new flu virus. From the time the flu, then called swine flu, first began to be diagnosed in Mexico last year, the informatics team has tracked infection numbers, travel patterns and numerous factors to predict where the flu is heading and how large the impact is likely to be.

The danger is that the H1N1 strain is unique, and so no one has built up an immunity to it. Researchers and pharmaceutical companies around the world have only recently developed a vaccine against H1N1. But it won’t be available until mid-October, right about the time Vespignani’s team, and other researchers, predict the new flu will peak.

In a worst-case scenario, 60 million to 120 million Americans could contract H1N1, and some 150,000-300,000 people could need intensive care hospital treatment. Vespignani said some 30,000-90,000 people could die. Numbers are becoming harder to predict, he said, because the flu has spread everywhere and federal officials have stopped trying to record and report all cases of H1N1.

At most risk are school-aged children, who don’t have as highly developed immune systems as adults, and people with other health problems, such as diabetes or asthma.

Vespignani said that because the flu will begin to spread in large numbers at about the same time the newly developed vaccines will arrive, he believes that health care workers and first responders such as police and firefighters should be first in line for vaccinations.

Under a worst-case scenario, schools and work places could be challenged to function and might even have to shut down for a few days. “A very important part to mitigating this is going to be convincing people to stay home when they get sick,” he said. “It starts with what seems like a cold and a cough but fever is the key indicator. If you have a fever, stay home and call your doctor. A lot of us think we have to go to work, we have deadlines to meet, but we’re not doing anyone any good by spreading a very infectious flu.”

In a best-case scenario, people will be good about spreading the disease, and external factors could work in society’s favor.

“If we have a very mild fall and early winter, that could also help,” Vespignani said. “If everything comes together favorably, we could get past the peak vulnerability in pretty good shape.”