Flu surveillance boosts control, treatment options (w/ Video)

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Because pandemics unfold in unpredictable ways, surveillance of travel-related illness is among the most powerful tools health officials and doctors can use to detect and respond to new pathogens like the novel H1N1 influenza, says the physician who heads the University of Alabama at Birmingham (UAB) Travelers' Clinic.

"Being able to track disease outbreaks in real time enables you to know, in real-time, what works and what doesn't work in terms of treatment," says David Freedman, M.D., director of the clinic.

Freedman is also co-director of GeoSentinel, a global online network of 48 travel- and tropical-medicine clinics spread across several continents. The network is a partnership between UAB, the International Society of Travel Medicine, the [Centers for Disease Control and Prevention](link) (CDC) and other groups - and an important part of that surveillance toolkit.

"GeoSentinel is showing us travelers and mobile populations getting the flu," Freedman says. "We are tracking which countries and places have intense enough transmission that they are then exporting flu and potentially seeding other countries.

"Today, if a GeoSentinel-linked doctor in Singapore has 10 infected patients and treats them a certain way that works well, that information can be disseminated on the same day, as well," he says.

The H1N1 [flu virus](link) was first identified in Mexico and quickly spread

through human infection to more than 70 countries. H1N1 disease cases began immediately showing up as clickable dots on the GeoSentinel secure Web site in April of this year, Freedman says.

Unlike traditional surveillance maps, the GeoSentinel shows locations where someone got sick during travel, as opposed to where they live or where they may be recuperating.

Tracking and understanding the patterns of H1N1's spread remains crucial as more dots show up on the GeoSentinel map, Freedman says. Member clinics log on to the network and submit disease cases through a standardized Internet form, which links to global positioning. Qualified researchers, doctors and others use those reports for pandemic modeling and monitoring, and to gain a big-picture look at disease transmission.

"The most striking thing is how rapidly the swine flu spread," Freedman says. "Although the H1N1 virus is fairly mild compared to a lot of other novel flu viruses, it is very contagious. Back in 1918 and 1919 when we had the great flu epidemic, it took six months or more to spread across the world.

"The new H1N1 swine flu spread across the world in six weeks."

One important pattern to emerge through GeoSentinel monitoring was naming North America as the early source for spreading H1N1 person-to-person, Freedman says. The initial surveillance data was continuously shared with public-health groups, governmental agencies and doctors who needed to respond swiftly to the pathogen.

"With the speed of modern travel, and the fact that our countries draw visitors from a lot of different nationalities, the ingredients for a pandemic were there. Americans were top of the list for exporting this disease," he says.