

America's disease sentinels overtaxed
Report: Those on guard at ports of entry too few

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In a secluded corner of Hartsfield–Jackson International Airport, inside the no man's land between the aircraft doors that disgorge international passengers and the immigration gates that allow them into the country, there are two windowless rooms.

They are painted dull gray, lit by fluorescent bulbs, with a tiled floor and stainless–steel shower for easy cleaning and a one–way ventilation system that dumps the suite's air outdoors.

The rooms — they are medical holding cells — look unremarkable. In fact they are a battleground, the beachhead of a perpetual struggle to catch exotic diseases before they cross the country's borders.

The holding cells lie within Hartsfield's federal quarantine station, operated by the Centers for Disease Control and Prevention. There are 18 quarantine stations across the country, with 83 staff. They monitor the people and products that flow into the United States through 474 ports of entry: 60 million aircraft passengers on 675,000 flights every year, according to U.S. Customs and Border Protection, and 400 million tons of cargo on 90,000 ships.

Infectious disease authorities — including the government's own experts — say it's not nearly enough.

"The traditional, primary activities of the CDC quarantine stations no longer protect the U.S. population sufficiently against microbial threats of public health significance that originate abroad," the nonprofit Institute of Medicine --- part of the National Academy of Sciences, which advises Congress on health and science policy --- said in a report last fall.

Little attention

The report, which called for reorganization and significant additional funding, received little attention: It was released Sept. 1, one day after New Orleans' levees broke in Hurricane Katrina's wake. But with avian influenza H5N1 winging closer — Health and Human Services Secretary Michael Leavitt said last week it would reach the United States this year — the report's findings have become increasingly important.

The report will be on the minds of the several thousand scientists arriving in Atlanta this week for the International Conference on Emerging Infectious Diseases, the chief global convocation for tracking new and newly troublesome diseases worldwide. Avian flu is high on the agenda; speakers include the chief flu scientists of the World Health Organization and the World Organization for Animal Health.

But the meeting's organizers, as well as senior infectious disease specialists across the country, say it is a mistake to focus only on bird flu, though it has spread to 40 countries, sickening 177 people and killing at least 98. They point out that bird flu is only the latest of 34 infectious diseases known to have emerged in the past four

decades — since then—Surgeon General William Stewart told Congress, "It is time to close the book on infectious diseases. The war against pestilence is over."

"Avian flu exemplifies the concerns we have for other diseases as well," said Dr. Rima Khabbaz, director of the CDC's National Center for Infectious Diseases. "With global trade, products move around the world, animals move around the world."

Stewart's confident statement triggered a long relaxation in infectious disease combat in the United States. In the decade before he spoke, the country had 200 quarantine stations; by 2000, there were eight.

Rebuilding effort

After 9/11 and the anthrax letter attacks at the end of 2001 that killed five people, the CDC began building back the diminished defenses. If its planned expansion of quarantine resources is fully funded, there will be 25 stations and 158 staff members by the end of next year.

But while the expansion was proceeding, two significant health threats broke through the country's defenses: a shipment of infected rodents in 2003 that caused the hemisphere's first outbreak of monkeypox, an illness related to smallpox; and a man who landed in Newark in 2004 with a sore throat and diarrhea and died a week later of Lassa fever, an illness similar to that caused by the Ebola virus, after exposing 188 people.

Once the quarantine system's expansion is complete, the IOM report said, the CDC will have the equivalent of one inspector for every 750,000 travelers, forcing the inspectors to rely on the alertness of customs personnel.

The four staff members at the Atlanta station are called to arriving flights to examine sick passengers before they disembark about once a week. Much of their time is spent training other port and airport workers in the Southeast who serve as their surrogate eyes and ears.

Within Hartsfield, "we ask the Customs and Border Protection agents, the language interpreters, the wheelchair pushers to consider that public health is part of their job," said Dr. David Kim, an epidemiologist and the station's medical officer.

Illnesses slip through

Recent research has shown, though, that many cases of disease slip past observers, and that many travelers do not realize they are ill until after they have exposed others.

Toward the end of the 2003 outbreak of SARS, or severe acute respiratory syndrome, which killed 774 people in two dozen countries, Taiwan started checking all arriving passengers for fever and running diagnostic tests on a representative sample of those who seemed ill. Over a year, the country's health authorities found no cases of SARS, but they did find 40 cases of dengue, a mosquito-borne illness that humans can seed in new areas when they travel.

Dengue-infected travelers presumably passed into the country all the time but were never caught before, the researchers said in a paper published a year ago.

Similarly, research published last summer by the GeoSentinel Surveillance Network, a global alliance of clinics based partly in Atlanta, found that one of every 12 travelers

who visit the developing world and return to the United States need medical care for undetected infectious diseases after they return. Many acquired diseases that took weeks, and in some cases as much as six months, to manifest themselves.

"Someone could inadvertently enter the country with a potentially transmissible disease — either unknowingly, in an incubation phase, or knowingly but not meaning harm to anyone else," said Dr. Phyllis Kozarsky, a GeoSentinel founder and a professor at Emory University School of Medicine.

Hard to transmit

What saves us, say seasoned disease detectives, is that most of the diseases that cross into the United States cannot be transmitted easily; in the 2004 Lassa episode, for instance, none of the 188 exposed people became ill.

But if the diseases are transmitted and begin to spread, the responsibility for detecting them is likely to fall not on quarantine personnel or immigration agents, but on a separate set of personnel: everyday physicians.

"Most of the ugly emerging infections that have been picked up were caught by a clinician: the first case in the anthrax attacks, the first case of hantavirus," said Dr. C.J. Peters, the former chief of the CDC's "hot zone" Special Pathogens Branch, now a director of the University of Texas Center for Emerging Infections and Biodefense in Galveston.

But with managed care, he added, "we've pressed physicians into a mold where they have 10 minutes to see a patient and little ability to get lab work done. We are almost consciously moving against our ability to really detect these things early and effectively."