

Lessons From the Flu of '57

Pandemic Spread Quickly Among Young People

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Washington Post

Tuesday, August 25, 2009

In August 1957, the "Asian flu" was exactly where "swine-origin influenza A (H1N1)" is today.

A new strain of the influenza virus had emerged in the spring, an aggressively infectious illness that triggered sporadic outbreaks throughout the Northern Hemisphere's summer, a normally flu-free season. As scientists raced to develop and produce a vaccine, Americans debated how seriously to take the threat of a pandemic.

During the warm months, the illness struck mostly in group-living situations such as summer camps and military bases. But the virus was spreading inexorably, and the fall's mass gathering of children in the new school year would be like wind blowing on dry grass that had been showered with sparks. By October, the country was afire with influenza.

As public health experts prepare for a big outbreak of H1N1 influenza in the United States, they are looking to the past as they try to anticipate what may happen in the next two or three months.

The pandemic virus of 1957 caused an illness that was briefly harsh but rarely fatal. Like this year's strain, it emerged in the spring and smoldered over the summer, its traditionally quiet season. More than 80 summer camps have suffered flu outbreaks in the past two months; in 1957 the picture was much the same. As with many pandemic strains, the Asian flu also had an inordinate effect on younger people. By the time the 1957 pandemic was over, 40 percent of deaths had occurred among people younger than 65, a much larger fraction than in outbreaks of seasonal flu. Analysis of the first 44,000 American cases of this year's pandemic virus revealed the infection was most common in people age 5 to 24 -- 20 times as common, in fact, as in people older than 65. Eighty-three percent of fatal cases occurred in people younger than 65.

Such similarities suggest the pandemic of 1957 may be a particularly instructive model for what's to come.

The Attack Begins

The origins of the flu outbreak reported in Hong Kong in April 1957 remain shrouded in mystery. What was soon known, however, was that it had an unusually high "attack rate": A substantial fraction of people fell ill once the virus began to circulate in a community. That prompted U.S. officials to ask for samples of the virus, and the first arrived in

Washington on May 13. Scientists soon determined it was a radically new strain of the H2N2 class of influenza.

The new bug hopped its way into North America, striking first on naval vessels and coastal military installations. Flu appeared in Newport, R.I., on June 2 and soon after in California. The attack rate was 30 percent on the ships and 5 to 10 percent on shore stations, according to the reports from the Communicable Disease Center (now the Centers for Disease Control and Prevention).

Soon, the virus moved into the civilian world.

The first well-studied outbreak occurred in Grinnell, Iowa, where 1,688 people from 43 states and 9 countries, most of them women, had gathered in June for a church conference. Among them were 200 Californians, including at least one from Davis, where an outbreak had recently occurred.

The first Iowa case appeared on June 26. Within a few days there were dozens more, and a dormitory was designated an infirmary. By July 1, with the toll at 200 cases, the conference disbanded.

Returning home, the delegates effectively seeded the entire continent with the new virus. Curiously, no community-wide outbreaks followed. That was explained by saying summer's heat and humidity are somewhat inimical to flu -- a belief largely borne out by subsequent experiments. Whatever the reason, it helped assure people at the CDC there wasn't going to be an all-out epidemic . . . at least until fall.

"We were very encouraged by the Grinnell experience," recalled D. A. Henderson, 80, a distinguished scholar at the University of Pittsburgh's Center for Biosecurity, which is based in Baltimore.

In the summer of 1957, he was three years out of medical school and at the end of a two-year stint with the Epidemic Intelligence Service (EIS), the CDC's mobile team of "disease detectives." He agreed to stay on to help manage the U.S. Public Health Service's response. (Henderson and his colleagues recently published an analysis of the 1957 pandemic and its possible lessons for the current one.)

Immediately, the government epidemiologists had to decide whether to order the cancellation of a Boy Scout jamboree set to run from July 12 to 24 in Valley Forge, Pa., with 53,000 attending.

"We knew that most were going to be in two-person pup tents, they were going to eat in small groups and spend a lot of time outdoors," Henderson remembered. "We decided the amount of contact would be limited." So they let the event proceed, although as a precaution the Army prepared a field hospital of 600 beds and the CDC sent an observer, a 27-year-old physician named W. Yates Trotter Jr.

Ultimately, 350 people became ill.

"There was no big epidemic," Trotter, 79, recalled last month from his home in Springfield, Mo. "But you wouldn't expect it to happen immediately. My guess is that a lot of people carried it home."

In the hot summer weather, children's camps were among the few places where flu continued to spread. Camp Roosevelt in Maryland had 70 cases and closed early on July 11. In Northern California seven camps reported flu, with 123 out of 505 children contracting the infection. That attack rate of 24 percent was actually an underestimation of what lay around the corner with the opening of school.

'Don't Become Hysterical'

The CDC had already told the country's six vaccine manufacturers that a pandemic "would probably occur this fall" and asked that they make a vaccine as quickly as possible. The work began immediately, and so did the jockeying for the vaccine.

Trotter, who after observing the scout jamboree was named the surgeon general's adviser on influenza, recalled that a member of Congress from Michigan wrote to request that his state be first in line for the vaccine because it made military vehicles and had a long coastline (albeit a freshwater one).

"I wrote back and told him basically that 'what you say makes no sense,' " Trotter recalled. A sergeant-level assistant intercepted the letter and diplomatically pointed out that while what Trotter had written was correct, the young doctor "needed to learn something about Washington." Together they composed a letter thanking the legislator for his concern, assuring him everything was being done to make enough vaccine for everyone who needed it, "and all the basic gobbledygook."

"Soon after that, the legislator put out a press release about what a good job the Public Health Service was doing," Trotter remembered.

By Sept. 11, 5.4 million doses of flu vaccine had been released: 1.8 million to the Department of Defense and 3.6 million for civilian uses.

Late that summer, Walter Cronkite hosted a 30-minute special on CBS Radio about the impending epidemic. It included a visit to the Lederle Laboratories vaccine factory in Pearl River, N.Y., where the virus was being grown in banks of chicken eggs. As a technician described how a machine injected the vaccine seed into six eggs at a time, listeners could hear the shells crack.

They also heard this warning from Deputy Surgeon General W. Palmer Dearing: "It is possible that 10 to 20 percent of the people of the United States could eventually become ill with the Asian flu. The great bulk of the cases probably would not be severe. . . . However, there is a community hazard. So many could be sick at any given time that

physicians, nurses and hospitals could be overtaxed and many community activities slowed down or even temporarily stopped."

Cronkite's report captured the diversity of medical opinion about what lay ahead. A physician on the Chicago Board of Health urged everyone to get the vaccine. But Morris Greenberg of the New York City Department of Health countered, "It is a little difficult to see why one would try to protect the entire population against an illness so mild." New Orleans's public health officer covered all the options: "The slogan for this impending national disaster adopted in this community is: 'Don't become hysterical. Contact your family physician.' "

Late in August, the Association of State and Territorial Health Officers endorsed use of the vaccine. It encouraged people to stay at home and not go to the hospital unless they were seriously ill. It warned hospitals of a flood of patients. It recommended that schools stay open unless there was a dire shortage of students, teachers or bus drivers. It suggested that group meetings not be postponed or canceled.

Meanwhile, a preview of the fall drama was underway in Tangipahoa Parish, in southeast Louisiana.

Public schools there -- still segregated -- had opened as usual in mid-July. (The early start allowed a long break in the spring when children picked strawberries, the region's cash crop.) Two weeks into the term, the black schools, which were generally more crowded, began experiencing high absenteeism from flu. By Aug. 5, 10 of the 12 black schools had closed for a week. The seven white schools stayed open, although several had single-day absentee rates of nearly 50 percent.

Dispatched to observe the outbreak, CDC epidemiologists learned that flu had hit high schools before elementary schools. A person's risk of becoming ill rose steadily with the size of the family. Blood sampling and questionnaires ultimately led the scientists to calculate an astonishing attack rate: 60 percent of children -- and 42 percent of the entire Tangipahoa Parish population of 60,000 -- contracted influenza that fall.

That same month, 44 Turkish exchange students bound for American colleges were not allowed to board a ship in Rotterdam because 15 were ill with flu. They went to Amsterdam and flew to New York instead. Three were hospitalized when they arrived.

The ship they were supposed to be on, the Arosa Sky, arrived five days later. As is usually the case with flu, the attempt to limit spread of the virus had been futile. Of the 850 people aboard, 250 had come down with flu on the crossing.

By the end of August, the epidemic was on the wane in or essentially gone from China, Japan, the Philippines, Malaya, India and other parts of Asia where it had spread explosively in the spring. In southern Europe, Central and South America, and coastal Africa (first the east and then the west) it was on the upswing.

Too Late for Some

As summer gave way to the cooler days of fall, the virus swept through schools across the United States. Because of the time needed for transmission and incubation, it took at least three weeks (and usually five or six) after classes started for peak absenteeism to hit.

In a brief calm before that storm, many communities wondered whether they might escape the virus or if public health officials were crying wolf. "Did New York City jump the gun on Asian influenza?" queried a story in the New York Times on Oct. 10.

The answer was no. A week later, 29 percent of New York's school-age children were not in class, and Bellevue Hospital was so overwhelmed with flu cases that it canceled elective surgery.

School superintendents in 36 cities reported their absentee rates each week to the Communicable Disease Center. A study of the epidemic published in 1959 estimated that "over 60 percent of students had clinical illnesses during the fall." In the District, school absenteeism peaked at 23 percent the week ending Oct. 12. In Baltimore, it was the next week; in Boston, two weeks later.

A sample of how the flu hit adult workers was provided by the Bell System, then a nationwide telephone monopoly, which made regular reports on absenteeism from 36 cities. Bell's peak "industrial absenteeism," which was generally not more than 8 to 10 percent of the work force, lagged behind school absenteeism by two to three weeks. Businesses staggered briefly, recovering in a couple of weeks, as did most flu victims.

Scattered through the news stories and the mimeographed weekly CDC reports, however, were accounts of tragedy: A 2-year-old toddler dying in his mother's arms on the way to the hospital in Tangipahoa Parish. A 12-year-old camper who died on a hike in San Diego. A 16-year-old exchange student dying of "fulminant hemorrhagic pneumonia" a few days after arriving in New York.

In general, though, the news coverage was low-key, with stories focused on such subjects as how the flu was disrupting the high school and college football schedule.

There was a priority list for the vaccine, starting with President Dwight D. Eisenhower, who got his flu shot Aug. 26. When the District got its first shipment on Sept. 3, it went to the police, firefighters and the staff of D.C. General Hospital. Further down the list were employees of the medical examiner's office, prisons and state schools, water and sewer workers, bus drivers, telephone workers and teachers.

Overall, the vaccine was judged 45 to 60 percent effective in preventing infection. The trouble was that much of it became available during the peak period or right after it. By the first week in November, about 40 million doses had been released, and both a state-by-state allocation scheme and the occupational priority list were dropped. The pandemic was already losing steam.

By Thanksgiving, life was nearly back to normal, and health officials found themselves trying to convince the public that flu shots were still worth taking. Their advice was good. Asian flu came back for a third time, in late February, causing another spike in mortality, this time mostly in the elderly.

In all, the 1957-58 pandemic was responsible for about 60,000 "excess deaths" in the United States -- deaths above what would have been expected in normal times. About 40,000 occurred in the summer and fall of 1957, and 20,000 in the winter of 1958. The toll is the equivalent of 107,000 people in the U.S. population today. On average, ordinary, or seasonal, influenza contributes to the deaths of about 36,000 people in the United States each year.

Worldwide, mortality is estimated to have been about 2 million.

What's Next?

The H2N2 pandemic strain of 1957 was so contagious and it encountered such a susceptible world that it out-competed all the other strains of influenza A circulating at the time. They were of the H1N1 family, as is this year's. H1N1 flu reappeared as the "Russian flu" of 1977, probably the consequence of a laboratory accident somewhere in eastern Asia. The H2N2 Asian strain was itself driven into oblivion by the "Hong Kong flu" of 1968, which was a member of a new family, H3N2.

Today, few people remember either of those pandemics. Many historians have noted that even the "Spanish flu" of 1918-19, which killed at least 50 million people worldwide, left surprisingly little trace in the collective memory.

Whether today's Americans -- primed for catastrophes after the attacks of Sept. 11, 2001, and, thanks to AIDS, familiar with pandemics -- will remember this flu pandemic longer is one of the many things about this disease that only time will answer.