

Chicken Flu Virus Raises Concerns

The unusual influenza virus that killed an Asian boy last spring has re-emerged and infected three more people, killing one.

In May, a boy living in Hong Kong contracted a unique strain of flu—apparently from chickens—and died of complications. Public health officials were alarmed because it was the first such infection reported in humans, who have no antibodies against the virus.

This appeared to be an isolated case until the three others surfaced in Hong Kong in November and December—independently of each other, it seems. A 54-year-old man died; two children survived.

In all four cases, the people probably caught the virus from chickens, not from each other, says Thomas W. Skinner of the federal Centers for Disease Control and Prevention (CDC) in Atlanta.

Although mild avian viruses have infected people in the past, causing eye irritation, this is the first direct chicken-to-human transmission of a virulent flu virus, says Virginia S. Hinshaw, a virologist at the University of Wisconsin-Madison.

"This one is different, and that's what's bothersome about it," she says.

Influenza viruses can kill chickens: Millions of them have died in southern China this year as a result of the new virus. Chicken flu outbreaks in Mexico and

Pennsylvania in recent decades also killed millions of the birds, but no people.

Such avian viruses can spread to mammals, however. Ducks frequently pass flu viruses to pigs, which then act "like a laboratory mixing vessel," producing changes in the virus, says Dominick A. lacuzio, a virologist at the National Institute of Allergy and Infectious Diseases in Bethesda, Md. Because there are billions of pigs, ducks, and chickens in China—many living in close proximity to people—novel flu strains often arise there.

The new virus is an influenza A subtype called H5N1. The letters stand for hemagglutinin and neuraminidase—two compounds that elicit an immune response. Three subtypes of hemagglutinin (H1, H2, and H3) and two of neuraminidase (N1 and N2) are recognized among flu viruses that have caused human disease. Having a ready response to these compounds helps a person ward off the disease, which is why the current flu vaccine includes two inactivated versions of influenza A virus—H1N1 and H3N2.

This season's flu shots offer no protection against H5N1, however, because it has a novel hemagglutinin. A new vaccine against H5N1 would take at least 6 weeks to develop, Hinshaw says. If H5N1 proves to be transmissible between people, the risks could be considerable.

The people infected appeared to be

healthy before they caught the virus, lacuzio says. Healthy people survive bouts with most flu viruses, but many young, elderly, and weakened people need the protection of a vaccine, which scientists modify to keep pace with each year's mutations.

Every so often, as in 1957 and 1968, a flu virus takes a sharp genetic turn, catching even healthy immune systems off guard and causing widespread infection and death. The worst flu pandemic, in 1918, was caused by a radically new strain.

Researchers who monitor these viruses find the Hong Kong strain unsettling. To be deadly, a flu virus needs three things: people who have never been exposed to it, enough virulence to cause deadly disease in people, and the ability to jump from person to person. "We have two out of three" in Hong Kong, lacuzio says.

Some people doubt that the virus will spread widely. "In a place like Hong Kong, if it were transmitted rapidly [from person to person], there would be an explosion of people coming in sick," says Paul W. Ewald a biologist at Amherst (Mass.) College. So far, that hasn't happened.

Other scientists are less optimistic. The CDC has dispatched five epidemiologists to Hong Kong to obtain samples of the flu strain and to assess its transmissibility. —N. Seppa

Physical ills follow trauma response

Combat veterans suffering from post-traumatic stress disorder (PTSD) grapple with a mental legacy that includes recurrent nightmares, intense distress when reminded of upsetting incidents, feelings of detachment from others, and fragmented concentration. A new study indicates that these veterans also face an increased likelihood of contracting a wide variety of physical diseases up to 20 years after surviving combat.

Vietnam veterans who developed PTSD after experiencing heavy combat exhibit much higher rates of circulatory, digestive, musculoskeletal, nervous system, respiratory, and infectious diseases following military service than do their comrades who had little exposure to combat and no subsequent PTSD, a researcher reports in the November-December *PSYCHOSOMATIC MEDICINE*.

The physiological repercussions of PTSD may cause a litany of illnesses in ways that are as yet unclear, says Joseph A. Boscarino, an epidemiologist

and psychologist at Catholic Health Initiatives-Southeast Region, a hospital in Louisville, Ky.

Boscarino analyzed the medical histories of 332 male Vietnam vets who developed PTSD after exposure to heavy combat and 1,067 of their nonafflicted counterparts. He statistically controlled for many factors that can affect either trauma responses or physical illness, including intelligence, race, region of birth, enlistment status, marital status, medical history, education, income, cigarette smoking, and alcohol and illicit drug abuse.

The chronic vigilance and emotional turmoil associated with PTSD may sharply raise or lower secretions of stress hormones and alter the functioning of a number of bodily systems, Boscarino theorizes.

A genetic predisposition to PTSD may also influence susceptibility to physical disease, he notes (SN: 5/18/96, p. 310). Moreover, it's possible that Vietnam combat vets had greater expo-

sure to toxic chemicals and infectious diseases during the war than did non-combat vets.

A different pattern of health consequences may characterize women who develop PTSD as a result of rape or other traumatic experiences, Boscarino adds.

Much previous research has indicated that physical health suffers after exposure to a severely traumatic event, but most of the work did not distinguish between people who did or did not exhibit PTSD symptoms, says psychologist Paula P. Schnurr of the National Center for PTSD in White River Junction, Vt. "Boscarino's study is one of the rare ones to suggest that an excess of physical health problems occurs specifically among PTSD victims," she remarks.

The disorder probably sets in motion a variety of still poorly understood biological changes, according to Schnurr. She suspects that PTSD contributes substantially to the spectrum of health problems that has been linked to trauma. —B. Bower