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Tracking A Killer Virus. By Dr. Janet Parker

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On March 25, 2005, an alert microbiology technician working for the health care system in Manitoba, Canada noticed something very odd about a virus diagnostic testing kit. The kit received from their supplier (Meridian Bioscience Inc. of Cincinnati) was a part of routine quality-control certification conducted by the College of American Pathologists. The technician believed that the samples in the kit contained the deadly H2N2 Influenza virus. The H2N2 Influenza virus killed as many as 4 million people worldwide in 1957 - 1958. Because the virus has not circulated since 1968, anyone born after that would have no natural immunity to it. The virus has been kept only in high-security Level 4 biological laboratories since that time.

Concerned that his suspicion was correct the technician wisely notified the National Microbiology Laboratory in Winnipeg, Manitoba. They identified the virus and alerted Canadian Public Health officials, which in turn immediately alerted the World Health Organization and the U.S. Center for Disease Control in Atlanta.

To the dismay of the world health authorities, it was determined that the samples had been shipped over the past six months to 3,700 laboratories. Microbiology labs in 16 countries had received shipments of the kits containing the deadly flu strain. According to WHO, labs in Canada, South Korea, Hong Kong, Japan, Singapore, Taiwan and Germany were contacted and have reportedly destroyed all their sample vials.

It would take only the mistake of one laboratory technician who got exposed to this deadly H2N2 Influenza strain to possibly infect millions of people. Rapid global travel makes it relatively easy for an infectious disease to leap across continents. The rapid global spread of both SARS and influenza viruses demonstrate this.

The flu virus is readily transmitted by aerosol transmission by people coughing and sneezing. If just one person who was infected went home on a rush-hour bus or subway, we could in no time have millions of people dying of the flu. Most people have zero immunity to H2N2 Influenza virus.

In late 2003 in Southeast Asia, a new strain of avian flu was spreading through chicken and ducks with unprecedented speed and deadliness. The new virus - identified as "H5N1" - first appeared in Vietnam. It was capable of infecting humans and was very lethal. According to latest Center for Disease Control (CDC) figures, it swept through 11 Asian countries and is endemic in both domestic flocks and migratory birds. Over 100 million birds have been slaughtered, yet this virus continues to spread. The state of Texas has reported an outbreak of highly pathogenic avian influenza detected by routine state monitoring for avian influenza. This case of Avian Influenza A (H5N2) on one poultry farm in Gonzales County, Texas was the first outbreak of highly pathogenic avian influenza in the United States in 20 years.

The World Health Organization reported that the Cumulative Number of Confirmed Human Fatalities due to Avian Influenza A (H5N1) for the period of January 28 2004 thru April 4, 2005 was 49 deaths in 79 confirmed cases.

In tracking a killer virus World Health Organization epidemiologists approach the case just like a police detective. The World Health Organization outbreak verification system follows the general principles of surveillance: systematic collection, collation, analysis, and interpretation of data. The disease cases are mapped on a GIS mapping system. Trained public health officials go into the field and interview patients, their families, friends and associates. Contact history is important but so also are the forensics of medicine. The influenza virus is capable of rapid genetic mutation which can cause major changes in disease characteristics. In the case of Influenza, the new medical diagnostics include DNA analysis of various strains and determination of genetic similarities and differences. Dr. Nancy Cox, the CDC's chief influenza scientist, suggested that further mutation in the avian flu in Asia could precipitate the worst pandemic in human history.

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The Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO), World Health Organization statement:

www.who.int/csr/disease/influenza/

http://www.who.int/csr/disease/avian_influenza/en/

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