Isolation of Avian Influenza A(H5N1) Viruses
From Humans—Hong Kong, May-December 1997

MMWR. 1997;46:1204-1207
A STRAIN of influenza virus that previously was known to infect only birds has been associated with infection and illness in humans in Hong Kong. The first known human case of influenza type A(H5N1) occurred in a 3-year-old child who died from respiratory failure in May 1997. In Hong Kong, the virus initially was identified as influenza type A, but the subtype could not be determined using standard reagents. By August, CDC; the National Influenza Center, Rotterdam, the Netherlands; and the National Institute for Medical Research, London, United Kingdom, had independently identified the virus as influenza A(H5N1). An investigation conducted during August-September by the Hong Kong Department of Health and CDC excluded the possibility of laboratory contamination. Since this initial case was identified, six additional persons in Hong Kong have been confirmed to have influenza A(H5N1) infection, and two possible cases have been identified. This report summarizes the nine cases identified thus far and describes preliminary findings from the ongoing investigation, which indicate that multiple influenza A(H5N1) infections have occurred and that both the source and mode of transmission are uncertain at this time.

Confirmed Cases

Patient 1. On May 9, 1997, a previously healthy 3-year-old boy developed fever, sore throat, and cough. On May 15, he was hospitalized. His illness progressed, and on May 18, he was admitted to the pediatric intensive care unit (ICU). On May 21, tracheal aspirate collected on May 19. The child may have been exposed to ill chickens before he became ill.

Patient 2. On November 6, a 2-year-old boy with a congenital heart disease developed high fever, cough, and sore throat and was hospitalized the next day for presumed pneumonia. He had an uneventful recovery and was discharged from the hospital on November 9. A nasopharyngeal swab collected from the child on November 8 yielded influenza A(H5N1) virus.

Patient 3. On November 20, a previously healthy 13-year-old girl developed fever, sore throat, and cough; she was hospitalized on November 26 because of pneumonia. On November 27, she was transferred to the ICU and placed on mechanical ventilation. As of December 17, she remained hospitalized. Influenza A(H5N1) virus was isolated from a tracheal aspirate collected on November 28.

Patient 4. On November 24, a previously healthy 24-year-old man developed fever and cough and on November 29, he was hospitalized because of pneumonia. His condition deteriorated, and he died on December 5. A broncho-alveolar lavage specimen collected on December 1 yielded influenza A(H5N1) virus.

Patient 5. On December 4, a 24-year-old woman developed fever, sore throat, cough, and dizziness. Her symptoms worsened, and she was hospitalized on December 7. Her condition deteriorated, and on December 9, she was transferred to the ICU and placed on mechanical ventilation; as of December 17, she remained in the ICU. Influenza A(H5N1) was isolated from a tracheal aspirate collected on December 9.

Patient 6. On December 7, a 5-year-old girl developed fever, rinitis, cough, sore throat, and vomiting. As of December 17, she remained hospitalized in satisfactory and stable condition. A nasopharyngeal aspirate collected on December 10 yielded influenza A(H5N1) virus.

Patient 7. On December 12, a 2-year-old boy developed fever and was admitted to the hospital in good condition. The child is a cousin of patient 6, who frequently visited him and his family at their home. On December 16, a culture from the child was reported positive for influenza A(H5N1) virus.

Possible Cases

On November 24, a previously healthy 37-year-old man was hospitalized because of pneumonia; onset of illness was November 17. He recovered and was discharged from the hospital on December 9. Although respiratory specimens were unavailable for testing, preliminary results of serologic tests suggest infection with influenza A(H5N1); results of a neutralization assay, which is required to confirm infection, are pending.

The other possible case-patient is the 3-year-old sister of patient 7 and cousin of patient 6. She lived in the same apartment as patient 7 and had onset of fever on December 13 and was hospitalized in good condition. Preliminary laboratory results were positive for influenza A(H5N1) virus; confirmation of these results by virus isolation is pending.

Ongoing Investigation

The Hong Kong Department of Health and CDC are investigating these cases. The primary objectives of the ongoing investigation are to detect and investigate new cases and to identify potential sources, including whether and to what extent infection is being transmitted from person to person, birds to humans, or both. Blood specimens for measurement of antibody against influenza A(H5N1) and information concerning respiratory illness, exposure to birds, the type and degree of exposure to cases, and other relevant information are being collected from persons who had contact with case-patients and from control groups that did not have contact with case-patients.

Patients 1-6 lived in different parts of Hong Kong, had no contact with each other, and had no apparent common exposures. Patients 6 and 7 and the 3-year-old girl possible case-patient have all had contact with each other and common exposures. Influenza A(H5N1) viruses isolated from these patients are being fully characterized both antigenically and genetically by CDC.

Surveillance for influenza has been intensified in Hong Kong and Guangdong Province, China, following the identification of the first case of human A(H5N1) infection. Although some of the increased surveillance was conducted through outpatient facilities, most surveillance has occurred in hospitals. Beginning December 8, influenza surveillance was further intensified to include all government outpatient clinics in Hong

JAMA, January 28, 1998—Vol 279, No. 4 From the CDC  263 ©1998 American Medical Association. All rights reserved.
Kong. Surveillance among poultry in Hong Kong indicates continued circulation of A(H5N1) viruses since March, when outbreaks on poultry farms were first detected.

Reported by: TA Saw, FHKAM (Community Medicine), Hong Kong Dept of Health; W Lin, FRCP, Virus Unit, Hong Kong Dept of Health; K Shortridge, PhD, The Univ of Hong Kong; J Tam, PhD, Chinese Univ of Hong Kong; KK Lin, DREVS, Dept of Agriculture and Fisheries; RH Mak, FHKAM (Community Medicine); T Tsang, MPH, YY Ho, MSC, FY Lee, MBBS, HK Karung, MMED (Public Health), Hong Kong Dept of Health; Queen Mary Hospital; Queen Elizabeth Hospital; Prince of Wales Hospital; Yan Chai Hospital, Hong Kong; World Health Organization, Geneva, Switzerland; Influenza Br, Div of Viral and Rickettsial Diseases, National Center for Infectious Diseases, CDC.

CDC Editorial Note: The cases described in this report represent the first documented human infections with avian influenza A(H5N1) virus. One of the most important aspects of the investigation is to determine the source of infection and mode of transmission. However, this effort is complicated by the high prevalence of exposure to live poultry among residents of Hong Kong.

Although the spectrum of illness caused by human influenza virus infection can range from asymptomatic to fatal, most human influenza infections cause acute febrile respiratory illnesses that resolve without complications. Many of the cases of human infection with type A(H5N1) identified so far in Hong Kong have been unusually severe. However, because influenza surveillance in Hong Kong has been conducted primarily in hospitals, milder cases may not have been recognized, and the severity of infections identified to date may not be representative of the spectrum of illness caused by A(H5N1) infection in humans.

Infection with this influenza strain that is new to humans prompts consideration about whether this virus has the potential to spread globally and cause a pandemic. For an influenza pandemic to occur, a novel human influenza strain against which all or most of the human population has no antibody must be capable of sustained person-to-person transmission, causing widespread illness.1 As of December 17, acute respiratory illness among the population of Hong Kong apparently had not increased.

Although the potential for widespread transmission of this strain is presently unknown, as a precautionary measure, laboratory studies have been initiated to identify a candidate A(H5N1) vaccine strain. At this time, there are no plans for commercial vaccine production.

Two antiviral drugs, amantadine and rimantadine, inhibit replication of virtually all naturally occurring human and animal strains of influenza type A and therefore can be useful for prophylaxis and treatment of influenza A infections.2,4 Influenza A viruses resistant to amantadine and rimantadine can emerge during treatment, but drug-resistant influenza viruses have only rarely been isolated from specimens collected as part of routine influenza surveillance.4,5 Influenza A(H5N1) isolates from Hong Kong that have been tested are sensitive to amantadine and rimantadine.

Persons considering travel to Hong Kong should consider that (1) the number of clinical cases of influenza A(H5N1) identified to date is small despite the intensive surveillance that has been conducted among the 6.5 million residents of Hong Kong and (2) there has been no detected increase in the incidence of acute respiratory illness among residents of Hong Kong. However, the risk for infection to persons living in or visiting Hong Kong cannot be determined with certainty, and the risk may change over time. Although no human influenza A(H5N1) infections have been identified outside Hong Kong, worldwide surveillance for influenza is critical to monitor the circulation of various influenza strains. Human influenza types A(H3N2), A(H1N1) and B continue to circulate worldwide.1,5

References 9 available.

Update: Respiratory Syncytial Virus Activity—United States, 1997-98 Season

MMWR. 1997;46:1163-1165

1 figure omitted

RESPIRATORY SYNCYTIAL virus (RSV), a common cause of winter outbreaks of acute respiratory disease, results in an estimated 90,000 hospitalizations and 4500 deaths each year from lower respiratory tract disease among infants and young children in the United States.1 Outbreaks occur annually throughout the country.2,3 RSV activity in the United States is monitored by the National Respiratory and Enteric Virus Surveillance System (NREVSS), a voluntary, laboratory-based system. This report summarizes trends in RSV reported by NREVSS for July 1992-June 1997 and presents provisional surveillance results for July-November 1997. These data indicate onset of widespread RSV activity for the 1997-98 season.

Since July 1992, a total of 100 clinical and public health laboratories in 47 states have participated in NREVSS and have reported weekly to CDC the number of specimens tested for RSV by the antigen-detection and virus-isolation methods and the number of positive results. RSV activity is considered by NREVSS to have become widespread during the first of 2 consecutive weeks during which at least half of participating laboratories report any RSV detections. This definition generally indicates a mean percentage of specimens positive by antigen detection in excess of 10%.

From July 1992 through June 1997, onset of widespread RSV activity began each November and continued for a mean of 22 weeks, until April or mid-May. In most parts of the 48 contiguous states, the peak in activity occurred each year in January or February; however, in the Southeast, activity peaked as early as November or December.1 For the reporting period beginning July 1997, a total of 71 laboratories in 41 states reported results of testing for RSV. Since the week ending November 7, more than half of the participating laboratories reported detections of RSV each week, indicating onset of widespread RSV activity for the 1997-98 season.

Reported by: National Respiratory and Enteric Virus Surveillance System collaborating laboratories. Respiratory and Enteric Viruses Br, Div of Viral and Rickettsial Diseases, National Center for Infectious Diseases, CDC.

CDC Editorial Note: During the RSV season, health-care providers should consider RSV as a cause of acute respiratory disease in both children and adults. Most severe manifestations of infection with RSV (e.g., pneumonia and bronchiolitis) occur in infants aged 2-6 months; however, children of any age who have underlying cardiac or pulmonary disease or are immunocompromised are at risk for serious complications from this infection. Because natural infection with RSV provides limited protective immunity, RSV can cause repeated symptomatic infections throughout life. In adults, RSV usually causes upper respiratory tract symptoms but can cause lower respiratory tract disease, especially in elderly and in immunocompromised persons.2,4 Infection in immunocompromised persons can be associated with high death rates.6

©1998 American Medical Association. All rights reserved.
Toy-Related Injuries Among Children and Teenagers—United States, 1996

MMWR. 1997;46:1185-1189
1 table, 2 figures omitted

EACH YEAR, approximately two billion toys and games are sold in the United States. Although most toys are safe when risks are measured against the frequency of their use, children are at risk for some toy-related injuries and deaths. To characterize the magnitude of this problem, CDC analyzed data from the U.S. Consumer Product Safety Commission (CPSC) for 1996. This report summarizes this analysis and underscores the importance of parental participation in the selection and use of toys.

CPSC collects product-related injury data from numerous sources, including a probability sample of U.S. hospitals with a 24-hour emergency department (National Electronic Injury Surveillance System [NEISS]), Medical Examiner and Coroner Alert Program (MECAP), newspaper clippings, death certificate files, telephone reports, and other written and electronic correspondence. CDC analyzed these data to compile the frequency of toy-related injuries and deaths that occurred during 1996 among persons aged <20 years. Products included toys and games intended for use by children.

During 1996, a total of 18 toy-related deaths among children were reported to CPSC. An estimated 116,800 (95% confidence interval=98,500-135,100) nonfatal injuries requiring emergency department care were reported through NEISS. Of these, 76,000 (65%) occurred among males. Most cases (65,500 [55%]) involved children aged 0-4 years, followed by 33,500 (29%) among those aged 5-9 years, 12,000 (10%) among those aged 10-14 years, and 5800 (5%) among those aged 15-19 years.

Most (approximately 45%) toy-related injuries were lacerations; injuries also included abrasions or contusions (21%), ingestion or lodging of a foreign body (12%), fractures or dislocations (7%), sprains or strains (5%), and miscellaneous injuries (10%). Approximately two thirds of all injuries occurred above the neck and involved the face (32%), head (15%), mouth (11%), and eye (5%); fingers accounted for 5% of injuries. Approximately 1% of children injured were admitted to the hospital for further treatment.

Reported by: Div of Unintentional Injury Prevention, National Center for Injury Prevention and Control, CDC.

CDC Editorial Note: Children use toys for recreation, learning, exercise, psychosocial development, expression, and fantasy play. Most toys are designed, manufactured, and used safely. Surveillance for toy-related injuries and deaths can be useful to manufacturers, consumers, and persons who supervise use of toys.

At least four strategies can be employed to prevent toy-related injuries. First, because children can be injured while using toys designed for an older child, children should use only toys that are age appropriate. Second, children should be directly supervised when playing with balloons, which result in seven to 10 deaths each year. Balloons should be stored out of reach of children, and should not be inflated by children, and should be deflated and discarded after their use. An adult or competent adolescent should supervise activities when potentially dangerous household objects (e.g., sharp knives) are required for use with a toy (e.g., to build a model airplane). Third, because characteristics of the environment in which an age-appropriate toy is used may be associated with increased risk for injury, parents should ensure that toys are used in a safe and proper environment. Finally, because of the involvement of the head and face in toy-related injury, parents should be especially cautious when children are using projectile toys (e.g., dart guns).

CPSC has developed manufacturing standards that address toy hazards, such as those associated with small parts, sharp points and edges, electronic components, pacifiers, rattles, lawn darts, and other caregivers can prevent toy-related injuries by making informed decisions about the correct type of toy to buy and periodically monitoring children’s use of toys to ensure that toys are being used safely. Additional information about the safety of toys and corrective actions is available from CPSC, telephone (800) 638-2727; or on the World Wide Web, http://www.cpsc.gov/cpscpub/prerel/prerel.html.

References
1. Toy Manufacturers of America. Inc. Toy industry fact book, 1997-1998. New York: Toy Manufacturers of America, 1997.
2. US Consumer Product Safety Commission. A description of the injury or potential injury incident data base (IPII). Bethesda, Maryland: US Consumer Product Safety Commission, December 1989.
3. US Consumer Product Safety Commission. Corrective action handbook. Bethesda, Maryland: US Consumer Product Safety Commission, October 1988.

*Public Law 103-267, 1994.