

Research on avian influenza



**ASSIGN
BUSTER**

Environmental and Global Health Community Health Nursing

Community Health Nursing Environmental and Global Health-? HAT Task #3

Lynn Senfelds Western Governor's University Environmental and Global

Health Task A-? 1 The Communicable Disease Outbreak of Avian Influenza 2

Communicable diseases account for approximately 1/4th of worldwide

mortality, contributing to more than 15 million deaths each year (Kierny,

Exclor, and Girard, 2004). There have been three pandemics of Avian

Influenza in the last century-? 1918, 1957, and 1968. There have been

worldwide outbreaks of Avian Influenza among poultry over the years. It is ot

easily passed from birds to humans. The first outbreak of Avian Influenza A

(H5N1) in humans was in Hong Kong in 1997. In March through May of 1997,

a die off of poultry was reported, due to a highly virulent disease. Research

revealed it was from Avian Influenza (H5N1). In May, a three-? year-? old boy

died of “ complications” from H5N1. In early December, three more deaths

occurred as a result of Avian Influenza infection, ages 60, 54 and 13. Five

more cases involving varying ages were confirmed by mid December. A two

and three year old were cousins to a five year old who became ill. There

were 18 confirmed cases and deaths related to the H5N1 strain of influenza

by the end of the year. The age range was one to sixty. The infection was

acquired by humans directly from chickens. According to Butcher and Miles

(2004), on December 28, 1997, the Hong Kong Department of Agriculture

Fisheries ordered a slaughter of all chickens for a total of 1. 3 million

chickens. Exports from Mainland China were halted temporarily. A2-? The

Epidemiological Indicators Associated with Avian Influenza Since the China

outbreak of avian influenza H5N1, the virus has become endemic in Asia,

and has caused outbreaks in Europe and Africa. Despite detailed study, ittle

<https://assignbuster.com/research-on-avian-influenza/>

is known about the epidemiology of the virus. The frequencies of human infection Environmental and Global Health have not been determined, and we urgently need seroprevalence studies. The expanding geographic outbreaks in Russia, Mongolia and Kazakhstan indicate that more human populations are at risk (Avian Influenza, 2005). The fatality rate in China in 1997 was higher in people over age 13. The case fatality rate was 44%. There was a 57% mortality rate in the patients over age 13 and all of those had 3 severe clinical disease. Patients younger than age five had mild symptoms with one death from complications from Reyes

Syndrome. Of the seven patients over age 18, six died (88% mortality). Seven of the 18 cases had direct or indirect contact with poultry (Butcher & Miles, 2004). There are vaccinations for H1N1 and H3N2. Human trials for H5N1 are in progress. Qualitative indicators include awareness of available immunizations, early treatment with antivirals and prevention. Prevention includes chemical agents and physical environments such as soaps, alcohol and chlorination. Influenza A virus is readily inactivated by a variety of agents. Secondary prevention is available for those who have been exposed. The World Health Organization has a reserve mount of oseltamivir for a possible pandemic, which is an effective antiviral to extinguish or delay the spread of the virus. There are safe, inactive immunogenic vaccinations that have been developed (Avian Influenza, 2005). Awareness and availability will impact the incidence of an outbreak. The China outbreak was not well understood; therefore, preventative measures were not yet in place. Many were exposed and infected but were not developing clinical disease, and only seven of the 18 cases had direct or indirect contact with poultry.

Universal precautions and practicing good hygiene is the best way to prevent the spread of influenza. Hand Environmental and Global Health washing for 15-20 seconds, covering the mouth and nose when coughing or sneezing and avoiding touching the mouth, eyes and nose will be effective in controlling the spread of the virus. Accessibility to health care, health care facilities, and education will affect future outbreaks. Access to services, the percent of people who receive coverage and quality of service as defined by those that follow standard guidelines will be the best definers of qualitative indicators. Services must be equally distributed and compliance should be monitored. A3- Analyze the Epidemiological

Data The Hong Kong outbreak of avian influenza resulted in 18 human cases and eight deaths. This represents a 44% case fatality rate. According to the World Health Organization (April, 2011), there has been a widespread reemergence in 2003 and 2004 and the virus has spread from Asia to Europe and Africa. This has resulted in millions of poultry infections and several hundred human cases with a high case fatality rate. This is consistent with the Hong Kong outbreak. Ongoing H5N1 viral infections in poultry continue to pose a threat to public health. They have the potential to change into a form that is more easily transmissible among humans. Outbreaks of avian influenza raise global health concerns. This is related to the virus's potential to cause serious illness in people and its pandemic capacity. The risk factors associated with the Hong Kong outbreak were those who had direct or indirect contact with infected live or dead poultry. A contaminated environment was also a consideration. Possible human-to-human transmission was indicated because a two and three year old were

cousins to a five year old who became sick. 100% of the patient's over age 13 had severe clinical disease with a Environmental and Global Health 57% mortality rate (Butcher &

Miles, 2004). Many more people were exposed and 5 infected but did not develop clinical disease. The data indicates that those at risk for contracting the virus and sustaining disease were people with comorbidity and those with an already compromised immune system. A4-? Route of Transmission Avian influenza is a viral infectious disease of birds. Most of these do not infect humans. Influenza viruses are believed to cycle from birds to swine then swine to humans. The H5N1 strain of the virus has infected humans. Direct avian to human transmission is the major means of infection. The exact mode and sites of viral acquisition into the respiratory tract are not fully understood. Handling of infected live or dead poultry during the week before the onset of symptoms appears to be the greatest risk factor. Most patients acquire the virus from raising poultry inside of outside of their homes. Consuming raw or undercooked diseased poultry, handling or preparing diseased poultry and playing with sick poultry have all been indicated as potential risk factors (Avian influenza, 2005). Some possible transmission routes include contact with virus-? contaminated fomites or with fertilizer that contains poultry feces. The respiratory tract is then self-? inoculated or inhalation of airborne excreta may occur. Human-? to-? human transmission remains unclear, however, respiratory secretions and all other bodily fluids should be considered potentially infectious. Environmental and Global Health A5-? Graphic Representation of Outbreak 6 H5N1 infects foreign exchange student while visiting a Chinafamilyfarm 100% infection of poultry , 18

human infections Student's mother has traveled to Africa for a humanitarian visit after contact with daughter 100 cases in Africa Student flies home and has a two hour lay-over in Chicago, then arrives home in Madison. 10 cases in Chicago, 5 cases in Madison

Within 9-10 days of contact with student, there is a 61% fatality rate of those between ages 10-19. Student goes back to university classes. Within 7 days student develops a fever & difficulty breathing Environmental and Global Health A6- How the Outbreak Could Affect my Community The H5N1 virus does not currently spread from human to human efficiently. The fact that all influenza viruses have the ability to change leads health care professionals to be prepared for a potential pandemic. There is little to no immunity against the virus because humans are not usually infected. If there were an outbreak in my community, oseltamivir for people one year and older and zanamivir for people five years and older are two antiviral medications that may be effective treatment options. According to the CDC (2012), prophylaxis with these medications should be started within 2 days of known contact/exposure to a suspect case for a period of seven days. The community would need to assess high-risk groups. High-risk exposure groups are household members or close family members. Health care personnel who have contact within six feet of an infected patient are at moderate risk. The use of approved personal protective equipment will decrease risk of infection. There are many people in the population at risk for complications that would need to be screened; diabetics, asthmatics, people with heart conditions, adults ages 65 and older, pregnant women and children under age two to name a few. Current knowledge in global health

initiatives in order to protect our communities from communicable diseases is necessary. 60% of 600 human cases from 15 countries have died from H5N1 infection (CDC, 2012). This high mortality rate indicates a need for health care professionals to stay alert to early signs of potential infection such as fever and difficulty breathing. Screening questions such as recent travel is a key factor in early detection. Protecting the vulnerable Environmental and Global Health populations, education and early diagnosis and treatment are also key factors to prevent the spread of avian influenza in any community. B-? Community Health Nurse/SARS The community health nurse has a responsibility to be aware of communicable disease trends regarding incidence, prevalence and mortality in their areas due to the potential for spread of disease worldwide. Health care providers are required to report cases of SARS to the state or local health department. Some communities have infection control