

Management of Human Cases of Avian Influenza (Phase-3)

Instructions

For this exercise, you will work with your group to complete a case study investigation. Each segment of case study information will be followed by a series of questions. Facilitator or one person in your group should read the information aloud to group members. Then, work as a group to generate possible answers for each question that the group thinks to be most appropriate. Record the answers in the space provided.

Case Study: I

Diagnosis of Avian Influenza in Humans

Time allotted: 40 Minutes

Background

Imagine that you are working at the state public health office in Imphal. It is exactly one month since an outbreak of avian influenza has been contained in east Imphal district. It is now August 18th, 2007. You are in your office when you receive a phone call from your colleague Dr. R.P.Singh at the local health department. He wants to talk to you about a phone call he has just received from a doctor at J N Hospital at Imphal. A 39-year old lady named Meera is admitted to JN Hospital. Her symptoms which began on August 13th included fever, diarrhoea, nausea, and vomiting. No respiratory problems were reported. Her white blood cell count was low (3,300 cells/mm³) as well as her lymphocyte count (640 cells/mm³, 19%). Platelet count was normal (400,000 cells/mm³). Tests on stool samples were negative. Norfloxacin was prescribed.

Question 1: Based on this information, what would you suspect this patient has?

Additional Background

Dr. Singh continues. He tells you that today (August 18th) the patient began to cough and had shortness of breath. A chest x-ray was done. She had patchy infiltration in the lower region of both of her lungs. Treatment with ceftazidime and amikacin was started. Her doctors decided to transfer her to RIMS Hospital, Imphal.

Question 2: Do you think that Meera has influenza (human or avian)?

Current Condition

When Meera arrived at RIMS, her new doctor checked her health again. She had a fever of 39.4°C and a high respiratory rate, 44 per minute. Her heart rate was also high, 140 beats per minute. Her blood pressure was 110/80 mm Hg. Her doctor decided to intubate her. He could also hear a crackling noise on auscultation when she breathed. Laboratory tests on her blood found a drop in white blood cell count. Lymphocyte count was low as well. Platelet count was normal. The clinical profile indicated she was developing acute respiratory distress syndrome. Meera's doctor gave her imipenem, azithromycin and doxycycline.

Question 3: To date, which symptoms might indicate human influenza infection? Which symptoms might indicate avian influenza H5N1 infection?

Question 4: Dr. Singh asks you, “What do you think? Could this be avian influenza H5N1?” Why or why not? What other information would you like to know about?

H5N1 Activity

You tell Dr. Singh that you would like to get a little more information and ask him to contact Meera’s husband. At the same time, you begin to do a little investigation to learn more about the H5N1 activity in Imphal. You learn that east Imphal had no reports of human cases of avian influenza based on the reports of active event based surveillance in affected area of east Chingmangrong.

Question 5: How is this information helpful for you?

Exposure

As you collect detailed information about H5N1 in east Chinmangrong, Dr. Singh calls you. He has just spoken to Meera’s husband Kishan. Dr. Singh has learned that Meera lives in a rural area in central Manipur. A total of five people live at home but no one else in the family is sick. Kishan told Dr. Singh that several chicken had died during the outbreak in a household she visited 13 days back in east Chingmangrong neighbourhood around August 5.

Question 6: Do you think Meera is at risk for avian influenza H5N1 infection? If yes, why?

Question 7: What evidence do you now have that Meera has avian influenza H5N1 infection?

Testing

Dr. Singh and you agree that Meera is a suspect case of avian influenza H5N1. You also suggest that Dr. Singh speaks with Meera's doctor. The Rapid Response Team is deputed to contact Meera's neighbours and investigate them for signs of illness.

Question 8: What suggestion do you offer for Meera's care?

Conclusion

The rapid influenza test was negative. Antiviral medication given by Meera's doctor was not found effective. Unfortunately she began to have organ failure and died the next day. Based on clinical features and information about Meera's exposure to an environment where birds had died a month earlier due to confirmed avian influenza, you were able to appropriately suspect that she had avian influenza H5N1 infection. Laboratory testing would later confirm your suspicions. Samples from Meera tested positive by reverse transcriptase-polymerase chain reaction (RT-PCR) for H5N1.

Case Study: II

Collection, Storage and Transportation of Samples for Testing for a Suspect Avian Influenza Case

Time Allotted: 20 minutes

Scenario

A six year-old girl from another locality of east Imphal was admitted with high fever and difficulty in breathing to J.N. hospital on August 18th. Her mother reported that the girl's symptoms (fever, cough, and sore throat) started on August 14th. The mother reported that her school is only half a kilometre from the epiz were chickens had been dying. During that time she had visited a friend and played around the cages were the sick birds had been kept.

The examining doctor suspected avian influenza and called you for advice.

Questions:

1. What type of specimens should be collected?
2. When should the specimens be collected?
3. If the girl had presented at the hospital 7 days after her symptoms began, would you change your choice of what specimens to collect?

4. How should the specimens be stored before they are sent to the laboratory?

5. If there is a delay in sending the samples to the laboratory, what should you do with the samples?

Update

You advise the doctor on what specimens should be collected. Later that day, the doctor calls you again. He tells you that the girl's mother has refused to allow nasal swabs to be collected from her child, and that she refuses to have more samples taken over the next several days. The doctor himself does not understand why so many specimens are necessary.

6. You must explain to the doctor why multiple samples are necessary, so he can explain this to the patient's mother. What do you tell him?

Case Study: III

Infection control Practices

Time allocated: 20 minutes

A highly pathogenic avian influenza subtype has been identified in poultry in Aizwal. You are called to advise a RRT that is being sent to Aizwal, Mizoram to investigate a possible case of human avian influenza. The possible human case lives on a farm with live poultry, although the RRT will not have extensive interaction with the birds, the RRT members have limited quantity of Personal Protective Equipments (PPE). They have to provide PPE to a number of persons and they need your infection control expertise to help them prepare for the trip.

Question 1: What all infection control supplies you would think of listing?

Question 2: Based on what you know about infection control, what priority PPE would you advise to different categories of people knowing that you have limited stocks?

Question 3: What particular infection control measures you would recommend for the public?

Case Study: IV

How to Communicate with the Public

Time allotted: 20 minutes

Background (hypothetical)

The following situation was reported by IDSP unit of Orissa on 12th November, 2007. You know that:

1. Three workers from Orissa's Chilka lake (a large brackish water lake bird sanctuary and tourist venue) have been hospitalised with influenza like illness.
2. The lake perimeter was closed after 8 wild birds were found dead and tested positive for the H5N1 virus.
3. Those hospitalised include a 28 year old guide, a 39 year old vendor, and another food worker. A total of 143 of 500 employees are considered at high risk for exposure to the virus.

Question 1: Based on the information that you have, how would you communicate with the public about this situation?

Scenario

As district CMO you are aware that the risk has to be communicated to the public. No material is available in Oriya language. You are also not sure about the distribution of the exposed population. You are aware that some foreign tourists have also visited the lake

Question 2: What would be your communication strategy?

Question 3: What could be done about the foreign visitors.