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N442-Populations and Global Health
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11/13/2023

N442 Contagion Video handout

1. Do you think the discussion with the physician right after his wife dies realistically portrays how a medical provider could explain such a phenomenon?

- a. The way the physician explained the phenomenon in the film was realistic. The physician had no knowledge of what caused the sickness. He only went by symptoms that somewhat looked familiar to him. At the time, the origin of the contaminate wasn't presented, he did not have all of the factual evidence as to where her exact visiting location was, who she touched wasn't evident, which surfaces she touched weren't evident, nor how long her symptoms were prevalent. The only thing the ER physician knew of was that which was in front of him. Even though telling a patient's family that they have died isn't easy to do, I believe the physician could have presented a little more compassion and understanding. After all, if the physician doesn't know anything about the virus that attacks the patient's body, neither will her husband. The physician could have been more empathetic to that fact.

2. How many times do you touch your face during the movie?

- a. I touched my face between two and three times during the movie.

What do they quote as the range in which people touch their face in an hour?

- They do not quote an hour. The doctor states, the average person touches their face 2 or 3000 times a day, 3 to five times every waking minute (about 180-300 times in an hour).

3. Identify the chain of infection:

- a. Microorganism: Virus
- b. Reservoir/Source: Bat and pig
- c. Portal of Exit: Coughing
- d. Mode of transport: Droplet

- e. Portal of entry: Mouth and nose
- f. Susceptible host: those who are not immune.

4. What is/are the infectious agent?

- a. At the end of the movie, a bat infected a pig. The pig is carrying an infectious disease that a meat man rubbed on his hands and clothing. He then takes a picture touching the shoulder of the initially infected woman. Dr. Ally Hextall determines that the virus is a combination of genetic material from pig and bat-borne viruses.

5. What diseases did they rule out? Measles and H1N1

6. What is the reservoir? Bat and Pig

7. What are the portals of entry? The portals of exit?

- a. Portals of entry: Mouth and nose
- b. Portals of exit: Coughing

8. What are the fomites? Can the virus live for 6 days in a box?

- a. Fomites refers to transmission from surfaces.
 - i. Fomites: doorknobs, water fountains, and each other
- b. The virus cannot live for days on a box

9. What is the process they take to determine what the disease is?

- a. An examiner takes a sample from a dead person and tests the cells. In this movie, examiners opened the skull of a woman to visualize her brain since she had seizures prior to dying. They took samples and looked at the microorganisms through a microscope. The scientist and examiners had difficulty pinpointing the actual organism, because it was foreign or new to them. They had never seen it before, it just mutated quickly. So, one doctor or scientist had to reach out to the other scientist who was a

little more skilled at identifying microorganisms and he mentioned that the virus is 15 to 19 kilobases in length and contains 6-10 genes. He then claimed that it is typical of a paramyxovirus that is equivalent to Godzilla, King Kong, and Frankenstein together.

10. What agencies get involved? CDC and WHO

11. What precipitates these agencies getting involved?

- a. The virus was rapidly spreading and killing millions of people. The CDC and WHO got involved to see how to prevent the virus from spreading further and also to determine how a vaccination can be developed.

12. What is the role of these agencies?

- a. CDC- works on emergency preparedness, strengthening labs, and improving global access to testing, diagnostics, and vaccines.
- b. WHO-sets international health standards and provides guidance on how to maintain health during a pandemic.

13. What is the time frame from onset to manifestations of symptoms i.e. incubation period and then to death?

- a. The incubation period is less than 10 days. However, Beth Emboff in the film showed symptoms within two days of contact with the virus.

14. What are the actions taken by the CDC in terms of containing the infection?

Isolating the sick and quarantining those believed to be exposed.

15. What is an "R naught" (R_0)?

- a. The reproductive rate of the virus

16. What do the investigators do to protect themselves?

- a. The investigators were not wearing masks, they did not quarantine. However, without announcing it, they distanced themselves from those who were ill.

17. Calculate the mortality rate from the disease in the first 7 days in Minneapolis?

- a. $1-n-4$

18. What does the epidemiologist from the WHO do to track the progression of the disease?

- a. They collect data where an outbreak is occurring. For example, they mentioned a cluster at an elementary school where there were five deaths and thirty-two cases. There were another set of clusters at a hotel and a health club. Also a cluster on a bus in Tokyo, three were dead at that time.

19. What is an epidemic? versus a Pandemic?

- a. Epidemic: A disease outbreak that is rapidly spreading in a limited region
- b. Pandemic: An epidemic that is actively spreading to multiple regions across the globe

20. What is a quarantine? A state, period, or isolation in which people or animals that may have been exposed to infectious disease are placed.

21. Why does the husband not get sick? What type of immunity does he have?

- a. He is immune to the virus
- b. He has active immunity.

22. What are the symptoms of the virus?

- a. Headache, weakness, sweating, cough, seizures, fever/chills, and difficulty swallowing

23. **How do they develop a vaccine?** They take live toxins and inactivate them with chemicals.
24. **How is the vaccine administered?** It is administered through nasally through sprays from a syringe
25. **Is it a live virus vaccine versus an attenuated virus vaccine?**
- An attenuated vaccine
 - What is the difference?** Attenuated vaccines are weakened versions of the live vaccines created from wild viruses or bacteria.
26. **What sort of immunity does the vaccine provide?**
- Passive Immunity
27. **How can the vaccine be administered to the greatest number of people?**
- By distributing them to other health orgs worldwide and local agencies where people can come to get vaccinated.
28. **How does the environment, transportation, communication, essential services, government, and health care facilities get involved?**
- All tune in and follow the progression of the illness and find ways to contribute to the welfare of the communities. It's an all hands on deck situation during a pandemic.
29. **In your opinion do local, national, and global politics make a difference in the development and distribution of the vaccine?** Yes, local, national, and global governmental officials/leaders are the decision makers for the people. They decide the who, what, when, where, and why as the leaders of our society. They are also the face of the news. They get involved with healthcare agencies (which are government lead agencies) to find out information about infections and how to prevent them from spreading. They decide what funding is needed and where

it will come from to get materials to make such a mass production of vaccines. They even decide who will get vaccinated first. Politics essentially rule the world.

30. Does it make a difference if there is a rush to develop the vaccine? The sooner vaccines develop, the better the chances of survival rates. Even though rushing to develop a vaccine will not stop deaths from occurring because viruses mutate and spread much faster than it takes to create vaccines, the death rates from infectious diseases will improve much quicker the sooner a vaccination is developed, ideally, than later.

31. Does it make a difference that a vaccine may have other side effects? Ex: 1976 —Swine Flu vaccine.

- a. It does make a difference because everyone's body system responds differently. Some side effects may be mild for some people, while deadly for others. However, even though the vaccination may have side effects, the idea is that it will reduce an individual's chance of dying from an infectious disease, and not completely eliminate contracting or experiencing symptoms from it.

32. As a community health nurse: Identify the primary, secondary, and tertiary prevention methods that could be used for infectious diseases at both the individual and community levels.

- a. Individual Level:
 - i. Primary prevention: Hand washing
 - ii. Secondary prevention: Getting tested right away when symptoms are noted
 - iii. Tertiary prevention: Monitoring for long term effects of having the infection on organ systems
- b. Community Level:
 - i. Primary Prevention: Getting Vaccinated
 - ii. Secondary Prevention: quarantining those who are ill and isolated those with symptoms
 - iii. Tertiary prevention: Attending a support group for families who have relatives that have died from the infectious disease

33. What are the steps that a community needs to do to respond to an infectious disease outbreak?

- a. A community needs to quarantine those who have symptoms
- b. Remain aware of the health guidelines from the CDC
- c. Wear masks
- d. Socially Distance themselves
- e. Make sure there is a sufficient amount of food supplies for those who are quarantined and gather health supplies (thermometer, O2 monitor, cold/flu medication, and water)
- f. Wipe down surfaces
- g. Hand Hygiene (Number one protection)