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<b>DOCUMENT:</b>	C2-Training Course for Occupational Medicine physicians - Individual Exercise

## C2-Training Course for Occupational Medicine physicians

### Module 10 - Infectious Diseases for Employees working in Agriculture

#### Individual Exercise

The following multiple choice questions aim to provide an individual exercise in the area of infectious diseases for employees working in agriculture. In many questions more than one answer is right. Do not be afraid to mark more than one answer, if they apply, according to your opinion.

1. Which of the following disease(s) can be transmitted via inhalation of particles in the dust?
- influenza
  - brucellosis
  - melioeidosis
  - listeriosis
  - Q fever

Instructor answers: b+e

2. A farm worker who is employed in a sheep farm complains for fever, headache, sweating, myalgia, and cough. Which of the following disease(s) should be in your differential diagnosis?
- influenza
  - brucellosis
  - melioeidosis
  - anthrax
  - Q fever

Instructor answers: a+b+c+d+e

3. A new outbreak of avian influenza A/H5N8 is diagnosed in one of the chicken farms that you supervise. What should be your advice to the owner as regards health protection for his employees?
- appropriate personal protective equipment (PPE) should be worn at all times
  - hand hygiene should be reinforced and alcohol based disinfectant should be readily available in various sites on the farm
  - immunisation for seasonal influenza is recommended for all employees and residents in the farm
  - pregnant women should not enter the farm, due to the risk posed by influenza
  - immunisation against pneumococcus is recommended for persons at high risk

Instructor answers: c (seasonal influenza immunisation is required to prevent reassortment of the viruses)

4. The child of a farm owner in Romania has found their sheep dog wounded after returning from his rounds. The child washed and dressed the dog's wounds but reported to his father that during the process he was bitten and scratched by the dog in his left leg, as the animal is not fully domesticated. The wound was through his clothing and shows two long bloodied scratches on the child's left thigh. They are not deep lacerations needing stitching. What should be your advice to the farmer as regards the management of his son's wound?

- a. it is enough to clean the wound thoroughly with soap and water
- b. the wound needs to be cleaned thoroughly with soap and water and antibiotics prescribed covering aerobic and anaerobic bacteria
- c. the wound needs to be cleaned thoroughly with soap and water, antibiotics for local infection, verify up to date immunisation for tetanus for the child and anti-rabies vaccination for the dog
- d. the wound needs to be cleaned thoroughly with soap and water, antibiotics for local infection, verify up to date immunisation for tetanus for the child and anti-rabies vaccination for the dog. If the dog is not vaccinated then it needs to be observed for 10 days and the child should receive rabies immune globulin and rabies vaccination.

Instructor answers: d (sheep dogs are at particularly high risk for rabies as they are not fully domesticated and may be involved in fights with wild animals carrying rabies)

5. Three farm employees (migrant farm workers) have developed the following symptoms: after initial vomiting and diarrhea for a few hours, they developed diplopia, dysarthria, dysphagia, difficulty swallowing. Now they are having difficulty breathing and they were taken to the local hospital. The farm workers fell sick shortly after organising a celebratory meal for a religious festival. Their employer is worried; what should be your advice:

- a. no need to worry it is something that will be sorted out in the hospital
- b. it is probably a bad case of viral gastroenteritis, no need to worry if more workers develop the same symptoms
- c. you need to investigate the cluster yourself after developing an appropriate questionnaire to verify the food implicated
- d. you need to arrange for environmental samples (water, food) to be sent to the appropriate laboratory for testing
- e. you need to make sure that the cases are reported to the local public health authorities; anyone presenting with the same symptoms should be taken to the hospital immediately to ensure appropriate management; the farmer should keep all food stuff consumed by his employees for testing; any home made cans or other food stuff should not be consumed until further notice.

Instructor answers: e (these are botulism cases)

6. Your area has been hit by a cyclone with heavy rainfall and some farms you are supervising have been flooded with significant damages by flood water and large quantities of mud. All the area has currently no electricity or running water. What should be your advice to the local farmers involved in the clean up process?

- a. advise to boil water before consumption; rubber boots and gloves are recommended, goggles are also needed if mold is present; wounds should be covered with waterproof bandages and wounds should be washed thoroughly with soap and water afterwards; avoid using wood stoves or other sources for heating inside closed spaces; verify up to date immunisation for tetanus
- b. stay away from the flooded farm

- c. call the local civil protection authority for assistance
- d. advise for appropriate antibiotics as chemoprophylaxis against melioeidosis, tetanus and vibriosis.

Instructor answers: a (taken from relevant advice provided by the CDC)

7. During spring and early summer you are supervising a farm with a number of greenhouses growing strawberries, where a number of migrant farm workers are employed from Pakistan, Romania and Bulgaria. The farm owner is concerned as one of his Romanian workers was recently diagnosed with malaria from *P. vivax*. What should be your advice?

- a. not to worry as malaria is not transmitted from person to person
- b. to consult with a specialist and spray with the appropriate insecticide inside and outside the workers residences for mosquitoes
- c. to cooperate with the local public health authorities in the investigation of malaria in the population of Pakistani workers; make sure that they have access to healthcare because they have mild symptoms with malaria relapses which can be missed.
- d. to give to all migrant farm workers prophylaxis for malaria.

Instructor answers: c (*P. vivax* malaria may be re-introduced to malaria-free areas where the appropriate vector mosquito exists; it merits full investigation and particular attention to populations coming from endemic countries)

8. The following practices connected with rural life and agriculture have been implicated in the transmission of certain pathogens and diseases. Please write the relevant pathogen and/or disease next to each one:

- a. consumption of home-canned food, home-smoked fish or home-made sausages .....
- b. use of migrant farm workers from developing countries .....
- c. sheep shearing and wool sorting .....
- d. use of cattle dung for fertiliser .....
- e. use of sewage for watering arable land .....

Instructor answers: a. - botulinum toxin/botulism , b.-malaria/*P.vivax* or Chagas disease, c.- Orf or anthrax, d.- *Coxiella burnettii*/Q fever, e.-*Salmonella*, *Shigella*, *Cyclospora*

9. You are supervising a cattle farm with adjunct cheese manufacturing facility. A number of workers have complained for fever with chills, headache, sweats, arthralgia, weight loss and depression. What are important steps to remember in the investigation that follows:

- a. appropriate treatment of cases is needed as complication exist and untreated disease may carry fatality rate up to 2%
- b. contact with public health authorities is needed for the full investigation of the cluster
- c. contact with veterinary public health authorities is needed for the full investigation of the cluster
- d. contact with the food safety authorities is needed for the full investigation of the cluster

Instructor answers: a+b+c+d (this is a cluster of brucellosis and "One Health" approach is needed with the involvement of all authorities involved)

10. Connect the following agents or diseases with the appropriate mode of exposure in agriculture.  
(write the relevant number(s))

- |                          |                                  |
|--------------------------|----------------------------------|
| a. anthrax .....         | 1. contact with domestic animals |
| b. Q fever .....         | 2. contact with wildlife         |
| c. brucellosis .....     | 3. contact with farm dust        |
| d. leptospirosis .....   | 4. Food borne                    |
| e. rabies .....          | 5. water borne                   |
| f. listeriosis .....     |                                  |
| g. Giardia lamblia. .... |                                  |
| h. Hepatitis A .....     |                                  |

Instructor answers: a- 1,2,3,4 / b-1,2,3 / c-1,2,4 / d- 2,3,5 / e- 1,2 / f- 4 / g- 5 / h- 4, 5