



One Health Case Study Proposal

Case 4: *Bordetella* Infections in Cystic Fibrosis Patients

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One Health Framework Component: Microbiologic influences on health and disease/ internal exposure
Human-animal interaction/ animal assisted therapy and service animals

Student audience: Based upon a recently published case, it will be useful for students in veterinary sciences, pharmacy, medicine, nursing, public health, and therapy who are receiving training in epidemiology and public health.

Synopsis (250 words max): In a recent study of people with cystic fibrosis (which affects the lungs significantly) it was discovered that many were infected with the microorganism *Bordetella bronchiseptica*. This pathogen causes kennel cough in dogs but only rarely causes disease in humans. It is a reasonable causality hypothesis that the patients became infected from household pets, perhaps a companion animal. While the patients did not appear to be ill because of the infection, the presence of bacteria in the lungs may be a predisposing risk factor in pneumonias caused by other pathogens. Cystic fibrosis patients suffer acutely from pneumonias, and any contributing factor would be significant. An animal vaccine for the *Bordetella* pathogen is available and will limit exposure to humans.

The purpose of this case study is to demonstrate the link between human and animal health, even when the outcome in humans is indirectly associated with illness. It also shows the interconnectedness of health professionals such as veterinarians and physicians, nurses and pharmacists in obtaining relevant information about their patients' greater environment, such as the vaccination status of pets or the presence of other health issues in the household. Building a holistic concept of the patient environment may reveal unexpected risk factors. This case study is designed as an interactive forensic investigation, with data introduced gradually to challenge the students as they evaluate risk factors and causality from the new information. The best fit for the case is in the epidemiology/public health course in the 3rd professional year.

Sample Health Professional "One Health" Cases Calendar

