**Problem Based Learning Exercise**
**"Farmer in the Dell"**

## Scenario Part 1

After reading about the hog farm flooding in North Carolina associated with Hurricanes Dennis and Floyd, your cousin expresses concern about all the factory farms in Lexington County where he lives. He believes a chicken farm is about to start business about a mile from his home. As a health professional, he asks your advice about factory farms and wonders whether he should "fight this thing."

## Tasks

1. What happened in North Carolina in the aftermath of Hurricanes Dennis and Floyd?
2. Develop one or more hypotheses regarding what might be wrong with factory farms.
3. Are any health risks associated with factory farms?
4. What additional information do you need?
4. How will you obtain it?

## Scenario Part 2

Hurricanes Dennis and Floyd caused unprecedented floods along the Neuse River in North Carolina. The waters flooded the Peachtree Wastewater Treatment Plant in south Kinston and destroyed hundreds of hog farms. Flooding drowned untold numbers of hogs, chickens and turkeys and raw human and ovine waste contaminated the flood waters. The School of Public Health at the University of North Carolina-Chapel Hill reported that exposure to coliform bacteria and nitrogen pollution posed a risk downstream as well, and recommended staying out of all river waters.

Lexington County, SC is rated in the highest 10% for poultry waste and the poultry business has increased 76% in the past 10 years. In 1997 over 6 million birds were raised producing 5 million pounds of nitrogen waste and 1.5 million pounds of phosphorus.

## Tasks

1. What health risks are associated with exposure to coliform bacteria, nitrogen and phosphorus?
2. What environmental risks exist when waters are contaminated with these substances?

**Scenario Part 3**

A microscopic organism named *Pfiesteria* produces a toxin that is lethal to fish and has been reported to cause a variety of symptoms in humans. As examples, in 1991 alone, *Pfiesteria* was responsible for killing 1 billion fish in the Neuse River in North Carolina. In 1997 a young man spent the day water skiing in the Pocomoke River in Maryland. Within 30 minutes of leaving the water, he developed festering lesions on his lower extremities. They became so painful that he went to his physician. Also an environmentalist, the physician recalled hearing reports of a large fish kill in the area where the man had been skiing.

**Tasks**

1. How is *Pfiesteria* linked to factory farming?
2. What other symptoms have been associated with *Pfiesteria*? (for a clinical case)
3. What have federal and state governmental agencies done to address problems associated with factory farms?
4. What can be done to decrease pollution from factory farms?
5. What should you tell your cousin?
6. How could he "fight this thing?"

**Author Information**
Laurine T. Charles, MHS
Coordinator of Academic Affairs
College of Health Professions
Medical University of South Carolina
45 Bee Street
P.O. Box 250701
Charleston, SC 29425
(843) 792-4103 (Phone)
(843) 792-4024 (FAX)
charlelt@musc.edu

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