

AHCA/NCAL Clinical Scenarios

Scenario: FOOD SAFETY

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It's summer and everyone in the small, rural farming town in the Midwest state of WI, are enjoying a town celebration over the 4th of July weekend. There is a small SNF in the community that is home to 50 residents from the surrounding area. The town picnic has always been one of their favorite activities, with 35 of the residents able to attend with 10 staff members or their family. The menu included fruit and veggie platters, salads and desserts, all brought by the women that lived in the town. The meats were burger patties, as well as chicken and turkey burgers for those that did not want the beef. All in attendance had a wonderful time.

The next day, one of the residents that had attended started having stomach cramps and diarrhea. Three more felt nauseous and unable to eat. Over the next five days, 20 more became ill, one with bloody diarrhea and uncontrolled vomiting who was eventually hospitalized for hydration. Staff members that had attended did not become violently ill, but 5 of them became ill enough that they missed 3 days of work.

The public health department for the county began an investigation after the facility contacted them when the second resident became ill and the staff were worried. Stool samples were obtained from the residents and 1 staff member. It was noted that the common food eaten by all that were ill was the chicken patty. Thus, the public health department had to do a sweep of the town, as well as find the maker of the chicken patties to notify them of the illness.

What is the likely diagnosis for these residents, staff and community members?

Questions:

1. What is the likely diagnosis for this illness?
 - a. *Staphylococcus aureus*
 - b. *Clostridium botulinum*
 - c. *Salmonella*
 - d. *Escherichia coli (E. coli)*

The answer is C – *Salmonella*. There are 2 clues to this answer. The first is the fact that the source is the chicken patty. The second is that the symptoms began in an 8 hour to 5 day time frame. *Salmonella* is the most common form of bacterial food poisoning in the U.S. Symptoms usually begin within 6 hours to 6 days of exposure.

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Common sources for Salmonella infection are raw or undercooked chicken, turkey, and other meats, eggs, unpasteurized raw milk and juice, raw fruits and vegetables many animals, including backyard poultry, reptiles and small mammals.

Staphylococcus aureus begins within 20 minutes to 8 hours, making it one of the fastest forms of foodborne illness. The common source for this is foods that are not cooked after handling, such as sliced meat, puddings, pastries, and sandwiches.

Clostridium botulinum generally shows symptoms within 18 to 36 hours. This illness has the most profound symptoms of neurological symptoms beginning with facial paralysis and moving downwards as nerves become affected. Symptoms associated with cranial nerve paralysis include difficulty swallowing, muscle weakness, double or blurred vision, drooping eyelids, slurred speech, and difficulty moving eyes. The most common source is improperly canned or fermented foods such as canned meat products, green beans, or spinach. They can also occur with home canned/preserved foods if this has been provided to the residents by the family.

E.coli has an incubation period of 3 to 4 days, and the most common symptoms are severe stomach cramps, diarrhea, that is often bloody, and vomiting. Sources of this infection include raw or undercooked ground beef, raw unpasteurized milk, juice, raw vegetable, such as lettuce, raw sprouts, and contaminated water.

2. If two cases were identified, a resident and staff member. The department of public health should be notified as this constitutes an outbreak.

a. True

b. False

Answer is A True. Two individual cases with an epidemiological relationship constitute a possible outbreak. This could be either 2 residents or staff members. Once you have more than 2 individuals, you have an outbreak. You do not want to wait before contacting your local health department for a definitive determination of an outbreak, since that can slow down establishing the cause and spread should the 2 cases be an outbreak. If highly suspicious after one case, it may be appropriate to also contact your local public health department.

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3. What groups of people are at a high risk for developing food poisoning?

- a. Aged 65 or older
- b. Younger than 5
- c. Those with weakened immune system
- d. Women who are pregnant.
- e. A, B, C
- f. None of the above, all people are at risk
- g. All the above

The correct answer is G. While it is true that anyone can get food poisoning, there are certain groups of people that are more likely to get very sick from food poisoning.

Those aged 65 years or older are at risk, as their immune system and organs do not recognize or get rid of harmful germs as they once did. This creates a scenario where nearly half of the people over age 65 develop food poisoning with Salmonella, Campylobacter, Listeria or E. coli do require hospitalization.

Young children have immune systems that are still developing, so their body's ability to fight germs and sickness isn't as strong. In this age group, illness can lead to diarrhea and dehydration very quickly. Children under 5 are three times more likely to be hospitalized if they get a Salmonella infection.

Having a weakened immune system makes it harder to fight the germs and illness effectively. Weakened immune systems may be from diabetes, liver disease, alcoholism, HIV, autoimmune disorders such as lupus or receiving chemotherapy or radiation.

Pregnant women are more likely than other people to get sick from certain germs. For example, a pregnant woman is 10 times more likely to get a Listeria infection.

4. If someone no longer has physical symptoms such as diarrhea, they are no longer capable of spreading salmonella to others.

- a. True
- b. False

The correct answer is b. False. Salmonella bacteria can have prolonged shedding. The bacteria may still be found in stool for weeks to months after symptoms resolve and that can lead to transmission without meticulous hand hygiene, environmental cleaning and soiled material disposal.

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Although food safety, during the summer months especially, is a concern, there are preventative steps we can take to make sure that we can enjoy those picnics and BBQs without fear. The best preventative steps to take are:

1. **Hand Hygiene.** Always perform hand hygiene after using the bathroom, changing diapers, before and after preparing food, before eating, after handling garbage or soiled laundry items, and after touching animals.
2. **Appropriate food safety practices.** Avoid cross-contamination of other foods or cooking surfaces and utensils during grocery shopping, food preparation, and storage. Make sure that foods containing meats and eggs are cooked and maintained at a proper temperature
3. **For those that do develop a food borne illness with diarrhea,** avoid swimming and other water-related activities while adhering to meticulous hand hygiene.

Summer is short – we all want to have fun and enjoy it. We just need to know how to do so while keeping everyone safe.

Additional Resources

1. **CDC. 2024. Food Safety - Information for Healthcare Professionals.** Retrieved from <https://www.cdc.gov/food-safety/hcp/information/index.html>
2. **CDC. 2025. Food Safety – People at Increased Risk for Food Poisoning.** Retrieved from <https://www.cdc.gov/food-safety/risk-factors/index.html>
3. **CDC. 2025. Food Safety – Symptoms of Food Poisoning.** Retrieved from <https://www.cdc.gov/food-safety/signs-symptoms/index.html>
4. **Cleveland Clinic. 2022. Salmonella.** Retrieved from <https://my.clevelandclinic.org/health/diseases/15697-salmonella>
5. **Infectious Disease Society of America (IDSA). 2017. 2017 Infectious Diseases Society of America Clinical Practice Guidelines for the Diagnosis and Management of Infectious Diarrhea.** Retrieved from <https://www.idsociety.org/practice-guideline/infectious-diarrhea/>
6. **Mayo Clinic. 2025. Salmonella Infection.** Retrieved from <https://www.mayoclinic.org/diseases-conditions/salmonella/symptoms-causes/syc-20355329>
7. **NACCHO Local Health Department Directory** <https://www.naccho.org/membership/lhd-directory>