

BVPPH Newsletter to our Food Establishments

BVPPH – Blackstone Valley Partnership for Public Health

Representing the Towns of Blackstone, Douglas, Hopedale, Mendon, Millville, Northbridge, Upton and Uxbridge
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Dear Newsletter Recipient,

Welcome to the second Quarterly Newsletter from the Blackstone Valley Partnership for Public Health for the year of 2023! This month's topic is a return to food safety: the Big Six. The Big Six is an informal name for the six most common causes of foodborne illness. This newsletter will outline these six pathogens, including how they spread, what symptoms they cause, and most importantly, what you as a food establishment can do to prevent their spread.

Overview

While the CDC has identified hundreds of pathogens (a term referring to harmful microorganisms) that can lead to foodborne illness, there are six pathogens that are considered particularly common. These "Big Six" (as they are informally called) are highly contagious, and many can result in severe illness, especially in more vulnerable populations. These pathogens include the following:

- *Shigella* spp.
- *Salmonella* Typhi
- Nontyphoidal *Salmonella* (NTS)
- Shiga toxin-producing *Escherichia coli* (STEC), also known as *E. coli*
- Hepatitis A
- Norovirus

Each of these pathogens can be spread to (and through) food quite easily, and since they can result in severe illness, anyone who has been diagnosed with one of these six ailments should be excluded from working in a food establishment until they are cleared by their physician. In addition, if an employee has been diagnosed with one of these six illnesses, the Person in Charge (PiC) of the food establishment must report this to the local health department.

The Big Six

The following six pathogens are referred to as “the Big Six.” Presented in the following sections is a detailed list of these pathogens, their common sources, their onset time or incubation period (how long it takes before symptoms appear), their most common symptoms and how long they last, and finally, what can be done to prevent the spread of these pathogens.

Shigella spp.

Cause and Transmission

- Most commonly found in deli salads, raw vegetables, and dairy products.
- Can be transmitted through the fecal-oral route (i.e. when fecal particles contaminate food and water and are then ingested).

Incubation Period, Symptoms, and Duration

- Symptoms can appear within 8 hours to 2 days.
- Symptoms include diarrhea (often blood, containing pus or mucus), vomiting, abdominal pain and/or cramps, and fever.
- Symptoms can last between 5 to 7 days.

Methods of Prevention

- Control pests such as flies in your establishment, as they can spread fecal particles onto food.
- Follow thorough hand washing procedures.
- Cook and store food according to time and temperature guidelines.
- Exclude workers diagnosed with Shigellosis from the establishment.

Nontyphoidal *Salmonella*

Causes and Transmission

- Most commonly found in raw meats, poultry, eggs, unpasteurized milk or juice, fish, and raw produce (such as tomatoes, peppers, and cantaloupes).
- Can be transmitted through the fecal-oral route (i.e. when fecal particles contaminate food and water and are then ingested).

Incubation Period, Symptoms, and Duration

- Symptoms can appear within 6 to 72 hours.
- Symptoms include nausea, vomiting, abdominal cramps, headache, and fever.
- Symptoms can last between 4 to 7 days, with acute symptoms lasting for only 1 to 2 days.

Methods of Prevention

- Cook poultry and eggs to their proper minimum cooking temperature (or higher).
- Prevent cross-contamination from raw meat (especially poultry) to ready-to-eat food.
- Use proper handwashing techniques.

- Exclude workers that have been diagnosed with Salmonellosis from working at the food establishment.

Salmonella Typhi

Causes and Transmission

- Most commonly found in raw meats, poultry, eggs, fish, milk & dairy, produce, spices, raw nuts, beverages, and other ready-to-eat foods.
- Can be transmitted through the fecal-oral route (i.e. when fecal particles contaminate food and water and are then ingested).

Incubation Period, Symptoms, and Duration

- Symptoms can appear within 1 to 3 weeks, and as far out as 2 months.
- Symptoms include high fever, weakness or lethargy, abdominal pain, headache, loss of appetite, diarrhea or constipation, achiness, and sometimes a rash.
- Symptoms can last between 2 to 4 weeks.

Methods of Prevention

- Use proper handwashing techniques.
- Properly store and cook food according to time-temperature guidelines.
- Prevent cross-contamination between raw food (especially meat) and ready-to-eat food.
- Exclude workers that have been diagnosed with Typhoid Fever from working at the food establishment.

Shiga toxin-producing *Escherichia coli* (STEC)

Causes and Transmission

- Most commonly found in ground meat, unpasteurized milk and juice, cookie dough, and contaminated produce (especially lettuce, spinach, and sprouts).
- Can be transmitted through the fecal-oral route (i.e. when fecal particles contaminate food and water and are then ingested).

Incubation Period, Symptoms, and Duration

- Symptoms can appear within 1 to 10 days, although usually appear within 3 to 4 days.
- Symptoms include diarrhea (that often becomes bloody), abdominal cramps, and in extreme cases can lead to HUS, a condition that can cause kidney failure.
- Symptoms can last between 2 to 9 days.

Methods of Prevention

- Do not use raw milk or dairy products made from raw milk.
- Wash vegetables with potable water and only obtain produce from reputable suppliers.
- Cook meat (especially ground meat) to the proper minimum cooking temperature (for ground meat, this is 155 degrees Fahrenheit for a minimum of 17 seconds).
- Exclude workers who have been diagnosed with hemorrhagic colitis from working in the food establishment.

Hepatitis A

Causes and Transmission

- Most commonly found in contaminated water, shellfish, and ready-to-eat foods (such as salads).
- Can be transmitted through contact with contaminated surfaces, food, water, or from person-to-person contact.

Incubation Period, Symptoms, and Duration

- Symptoms can appear within 2 to 4 weeks.
- Symptoms include fever, low appetite, general weakness, nausea, abdominal pain, vomiting, muscle aches, dark-colored urine, and jaundice (typically after 5 to 7 days; characterized by a yellowing of the eyes and skin).
- Symptoms can last between 1 to 2 weeks, but may last for several months.

Methods of Prevention

- Exclude workers who have been diagnosed with Hepatitis A, or who have jaundice for seven days or less, from working in the food establishment.
- Follow proper handwashing technique.
- Avoid bare-hand contact with ready-to-eat food.
- Purchase shellfish from approved, reputable sources.

Norovirus

Causes and Transmission

- Most commonly found in ready-to-eat food (such as salad ingredients and fruit) and contaminated shellfish (such as oysters).
- Can be transmitted through person-to-person contact, and through contaminated food and water.

Incubation Period, Symptoms, and Duration

- Symptoms can appear within 1 to 2 days.
- Symptoms include nausea, projectile vomiting, watery diarrhea (not bloody), and abdominal cramps.
- Symptoms can last between 1 to 2 days.

Methods of Prevention

- Exclude workers who have been diagnosed with Norovirus Gastroenteritis from working in a food establishment.
- Follow proper handwashing technique.
- Avoid bare-hand contact with ready-to-eat-food.
- Purchase shellfish from approved, reputable sources.

In Conclusion...

Many of these illnesses are spread through the fecal-to-oral route. In other words, when fecal matter remains on hands that then come into contact with food or water that someone ingests. As a result, it's always critically important to follow proper handwashing techniques, especially after using the restroom. Many of these illnesses can also be found in raw food, so make sure to follow the proper cold-holding and cooking steps for those foods to reduce the number of pathogens. Always be careful to avoid cross-contamination between raw and ready-to-eat food in storage and preparation. Always remember to exclude workers that have been diagnosed with an illness linked to one of these six pathogens until they have been cleared by a physician or the local regulatory authority. Finally, you may have noticed that many of these pathogens have similar symptoms. As a result, you should also exclude employees that have diarrhea, vomiting, or jaundice. While not included in the pathogens listed above, you should also exclude workers from working in your food establishment who have a sore throat with fever or who have open wounds or sores they cannot properly cover.

Blackstone Valley Partnership for Public Health - BVPPH

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Millville Board of Health (508-883-5041)
Northbridge Board of Health (508-234-3272)
Upton Board of Health (508-529-6813)
Uxbridge Board of Health (508-278-8600 x8)

References

ServSafe Coursebook, 8th Edition

National Environmental Health Association, Certified Food Professional – Food Safety, 3rd Edition

AlwaysFoodSafe Website - <https://alwaysfoodsafes.com/en/big-6-foodborne-illnesses>