What do these Foods have in Common?

One thing eggs, poultry, and ground meats have in common is that they are among the foods that are often linked to outbreaks of Salmonella. Food safety experts are especially concerned about Salmonella right now. Although outbreaks from other dangerous bugs such as E. coli O157:H7 have declined, the experts are seeing an increase in Salmonella outbreaks. In recent years, major outbreaks have been linked to eggs, peanut butter, cantaloupes, sprouts, poultry and ground meats.

According to the Centers for Disease Control and Prevention, Salmonella accounted for 10 of the 13 major outbreaks it tracked during 2011 and for six of the nine big outbreaks it got involved in during 2012.

Besides meats, poultry and eggs, Salmonella has been linked to many foods including fruits and vegetables — such as sprouts, tomatoes, peppers, and cantaloupes — as well as peanut butter, chocolate, milk and dairy products, fish, shrimp, spices, yeast, coconut, sauces, unpasteurized salad dressings, cake mixes, cream-filled desserts and toppings that contain raw eggs.

Protect your customers, your co-workers — and yourself — from Salmonella!

Different types of Salmonella cause different illnesses. The more common symptoms include nausea, vomiting, cramps and fever. The less common types of Salmonella cause typhoid fever, a much more deadly illness. Salmonella Typhi, which causes typhoid fever, is one of the “Big Five” pathogens. This means that, according to the 2009 FDA model Food Code, if you have been diagnosed with Salmonella Typhi, you must report the illness to the manager. Symptoms of typhoid can include a
When to Accept or Reject Eggs and Egg Products

<table>
<thead>
<tr>
<th>Raw Shell Eggs</th>
<th>Accept</th>
<th>Reject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean</td>
<td>• Clean</td>
<td>• Dirty</td>
</tr>
<tr>
<td>Fresh</td>
<td>• Fresh</td>
<td>• Cracked or checked *</td>
</tr>
<tr>
<td>Free of cracks or checks *</td>
<td>• Free of cracks or checks *</td>
<td>• Off odors</td>
</tr>
<tr>
<td>Refrigerated at an air temperature of 7 degrees C (45 degrees F) or below when delivered</td>
<td>• Refrigerated at an air temperature of 7 degrees C (45 degrees F) or below when delivered</td>
<td>• Temperature over 7 degrees C (45 degrees F)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Liquid Egg Products</th>
<th>Accept</th>
<th>Reject</th>
</tr>
</thead>
<tbody>
<tr>
<td>In a sealed container</td>
<td>• In a sealed container</td>
<td>• Temperature over 5 degrees C (41 degrees F)</td>
</tr>
<tr>
<td>Kept at 5 degrees C (41 degrees F) or below</td>
<td>• Kept at 5 degrees C (41 degrees F) or below</td>
<td></td>
</tr>
</tbody>
</table>

* Note: A “Check” means the egg has a broken shell or crack but the contents are not leaking.

When Food Is Contaminated

It’s not possible to tell when food is contaminated with Salmonella without microbiological testing that is not usually available in kitchens. But it is sometimes possible to see or smell that something is wrong with the food. Here are some signs of contamination to watch out for:

- **Eggs:** Eggs should be delivered in a refrigerated vehicle that maintains an air temperature of 7 degrees C (45 degrees F) or below. And the shells should not be cracked or dirty. Crack one open. If the white clings to the yolk and the yolk is firm and does not break easily, the egg is fresh.

- **Poultry:** It’s not a good sign if poultry has soft flabby flesh. A purple or green color around the neck opening could mean that the meat is stale or has been improperly handled. Feel for stickiness under the wings and look for darkening of the wing tips. And sniff for abnormal odors.

- **Meats:** Brown, green or purple blotches are a sign of microbial action, and black, white and green spots can indicate mold. A sour smell or the presence of slime are not good signs. Meats turn slimy when temperature and humidity are high. Beef usually spoils on the surface, whereas pork spoils first near the bone. To test for spoiled pork, use a pointed knife to reach inside the meat. A sour smell on the knife indicates spoilage.

- **Seafood:** Fresh fish that is not really fresh will have a strong off-odor. If it is very old, the fish will smell like ammonia. If the eyes look sunken, if the gills are gray or greenish, or if your fingernail indentation stays in the flesh, it’s not fresh. Frozen fish that has thawed and

high fever, diarrhea or constipation, aches, headache, drowsiness, and, sometimes, a rash on your body.

The only way to know if you have salmonellosis is to consult a medical professional.

Unfortunately, food that is contaminated with Salmonella may look and smell normal. So you need to do what you can in your establishment to protect customers, co-workers — and yourself — from the pathogen (that’s what the experts call bugs that cause illness). You can help prevent foodborne illness by:

- Washing your hands before and after preparing food.
- Using separate cutting boards for raw meats and produce
- Keeping raw foods separated from cooked foods.
- Not touching ready-to-eat food with your bare hands.
- Checking to make sure cooked food reaches the required temperature.

The only sure way to know if you are infected with Salmonella is to see your medical professional.
Salmonella: Scarier Than You think

As if Salmonella contamination was not scary enough already, one type, called Salmonella Enteritidis, can find a way inside eggs that are not cracked and that look just fine. In addition, some types of Salmonella are resistant to many of the antibiotics doctors rely on to treat bacterial infections. The more Salmonella that are in an egg, the more likely they are to cause illness. So keeping eggs properly refrigerated helps stop the bacteria in the eggs from growing. The Centers for Disease Control and Prevention offer these other tips for dealing with Salmonella in eggs:

- Don’t use cracked or dirty eggs;
- Wash hands and cooking utensils with soap and water after contact with raw eggs;
- Don’t keep eggs warm for more than two hours;
- Use pasteurized eggs in recipes such as Caesar salad dressing or Hollandaise sauce that require raw eggs.

Salmonella can transfer from raw meat to a ready-to-eat food if the same cutting board is used for both foods. Or blood from raw meat can drip in a refrigerator if pre-cooked or ready-to-eat foods are left underneath. You can avoid cross contamination if you:

- Separate raw foods from cooked, pre-cooked and pre-prepared foods during storage and preparation.
- Keep food contact surfaces clean and sanitized.
- Use separate cutting boards and food contact surfaces for raw and pre-cooked and ready-to-eat foods.
- Don’t put bulk food containers on bench surfaces,
- Clean and sanitize all utensils and equipment.
- Thoroughly wash your hands after handling raw foods, especially raw meat.

Who’s at Risk from Raw or Undercooked Foods?

<table>
<thead>
<tr>
<th>Some Risky Foods</th>
<th>Who’s at Risk</th>
<th>Cause of Illness</th>
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</thead>
</table>
| Raw or undercooked eggs:
  Caesar salad dressing; soft-cooked eggs, some puddings and custards; mousse; sauces (such as Hollandaise) made with raw eggs. | Everyone, especially older adults, young children, and individuals with weak immune systems. | Salmonella Enteritidis                |
| Raw Dairy Products:
  Soft cheeses like Camembert and Brie made with unpasteurized milk | Everyone, especially pregnant women, older adults, young children, and individuals with weak immune systems. | Salmonella, Listeria monocytogenes, E. coli O157:H7 |
| Raw or rare meat:
  Hamburger; carpaccio                                 | Everyone, especially older adults and young children                          | Salmonella, E. coli O157:H7           |
| Raw or undercooked:
  Molluscan shellfish; raw clams or oysters on the half shell | Everyone, especially persons with liver disease or alcoholism and individuals with weak immune systems. | Vibrio vulnificus, Other vibrios, hepatitis A |
| Raw fish:
  Sushi; ceviche; tuna carpaccio                       | Everyone, especially older adults and individuals with weak immune systems. | Parasites, Vibrio parahaemolyticus    |
Test Yourself on *Salmonella*

Try this quick *Salmonella* quiz and test your knowledge of ways to reduce foodborne illness. As always, if more than one answer looks correct, choose the best one:

1. You may cause contamination of food by *Salmonella* if you:
   a. Wash your hands after using the restroom and before preparing food.
   b. Clean and sanitize utensils and food contact surfaces.
   c. Avoid touching ready-to-eat food with your bare hands.
   d. None of the above.

2. In recent years, big *Salmonella* outbreaks have been linked to:
   a. Poultry and ground meats.
   b. Sprouts.
   c. Eggs, peanut butter and cantaloupes.
   d. All of the above.

3. Which of these foods can you accept upon delivery to your establishment?
   a. Poultry with darkened wing tips and soft flesh.
   b. Fresh packaged sandwiches at 4 degrees C (40 degrees F).
   c. Fresh fish with dull, sunken eyes and soft flesh.
   d. Fresh meat products delivered at 7 degrees C (45 degrees F).

4. According to the FDA 2009 model Food Code, fresh shell eggs should be transported under refrigeration at:
   a. 21 degrees C (70 degrees F).
   b. 13 degrees C (55 degrees F).
   c. 7 degrees C (45 degrees F).
   d. 3 degrees C (38 degrees F).

Sources for this issue: Essentials of Food Safety and Sanitation: Food Safety Fundamentals; The Bad Bug Book