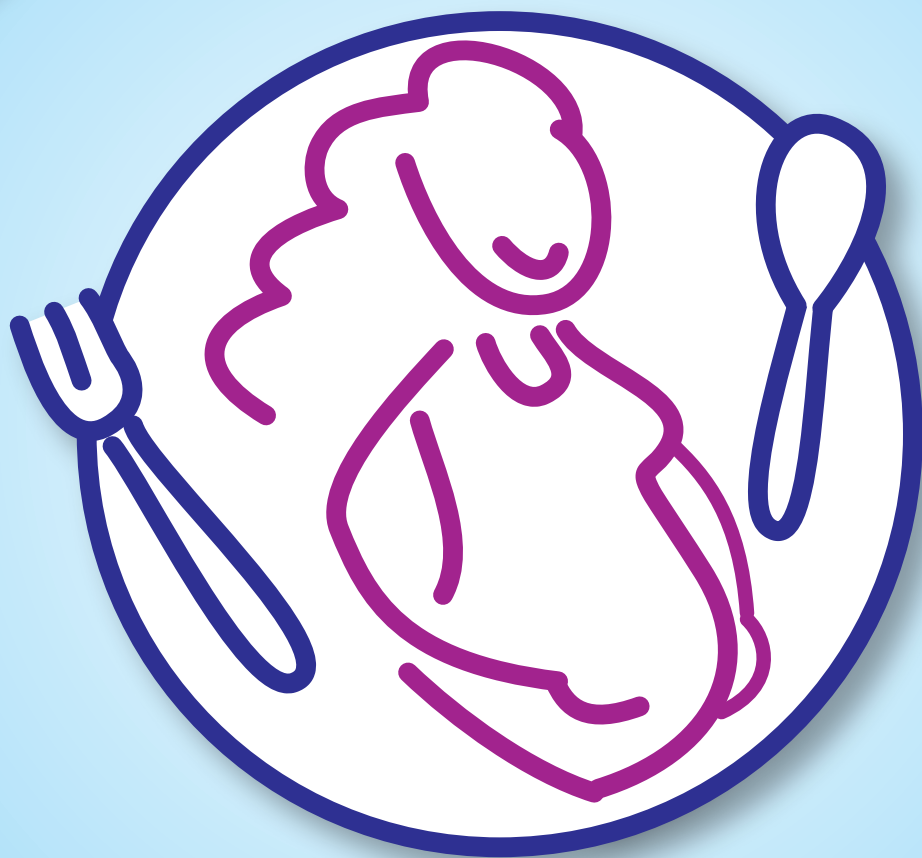


**Presentation
Information Inside!**



Food Safety *for* Moms-to-Be

Educator's Resource Guide
(In English and Spanish)



www.fda.gov/pregnancyfoodsafety

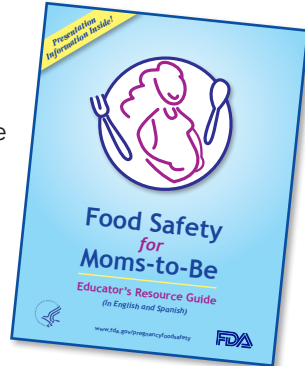


Program At-A-Glance

Food Safety for Moms-to-Be includes everything you need in this resource guide and on the Web to give a 60 – 75 minute presentation to pregnant women. It's an instant presentation — the research and the preparation have already been done for you! Use the program as a stand-alone presentation or include it in another safety, health, childbirth, and/or nutrition class. Either way, you'll be bringing the latest food safety information to pregnant women, raising their awareness, and offering them good food-handling habits that will last them through their pregnancy — and beyond!

Refer to this **Educator's Resource Guide** for:

- Food safety background information
- Presentation outline
- Reproducible food safety handout for your audience



Kick-off your presentation with an eye-opening **DVD** that highlights food safety must-knows for moms-to-be.
Running time: Approx. 20 minutes



Use the **website** to find materials you need to teach food safety. Be sure to encourage moms-to-be to check out the site as well.

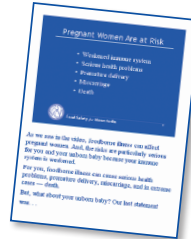
Visit the **website** for:

- PowerPoint® presentation slides
- Presentation talking points
- Food safety handouts for your audience
- Food safety poster to raise awareness
- Flyer for publicizing your presentation

Go to **www.fda.gov/pregnancyfoodsafety**, click on the **Food Safety for Moms-to-Be** link, and choose **"Educator Tools."**



POSTER



SLIDE & TALKING POINTS



FLYER



FOOD SAFETY HANDOUT

With your guidance, moms-to-be will learn that preventing foodborne illness is a key factor in keeping them and their babies safe — and it's easy!

A Special Note of Sensitivity

As you present this information, some pregnant women in your audience may discover that there are things related to safe food-handling that they should have done differently in the past. As a result, they may be concerned about their own well-being and the health of their unborn babies.

Be supportive and assure them that they and their babies are probably okay. But, if they do have health concerns, they should see their doctor or healthcare provider. Also, remind them that when it comes to foodborne illness, prevention is key **before, during, and after** their pregnancy!



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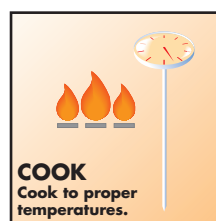
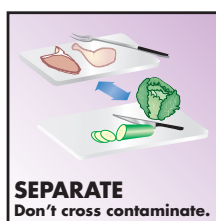
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Pregnancy & Foodborne Illness:

Frequently Asked Questions

What is foodborne illness?	Pregnant women may have heard about foodborne illness outbreaks in the news — for example, caused by <i>E. coli</i> O157:H7 or <i>Listeria monocytogenes</i> . Often referred to as “food poisoning,” it’s a sickness that occurs when people eat or drink harmful microorganisms (bacteria, including their toxins; parasites; viruses) or chemical contaminants found in some foods or drinking water.
Why should pregnant women be concerned about foodborne illness?	Pregnant women and their growing fetuses are at particularly high risk for foodborne illness because the mother’s immune system is altered during pregnancy. Such an alteration may make it harder for the mother’s body to fight off certain harmful foodborne microorganisms.
How serious can foodborne illness be for pregnant women?	Foodborne illness during pregnancy can cause serious health problems, miscarriage, premature delivery, stillbirth, or even death of the mother. Different microorganisms or chemical contaminants can affect the mother and fetus or newborn in a variety of ways.
Can foodborne illness harm the fetus?	Yes, harmful foodborne microorganisms or some metals in food can cross the placenta and cause harm to the developing fetus. As a result, the infected fetus or newborn can experience a wide range of health problems — or even death.
What are the symptoms of foodborne illness?	Symptoms vary, but may include stomach pain, vomiting, and/or diarrhea. Sometimes foodborne illness is confused with the flu because the symptoms can be flu-like with a fever, headache, and body aches.
How soon can foodborne illness symptoms appear?	Eating a contaminated food will usually cause illness in one-to-three days, but sickness can also occur in as soon as 20 minutes after ingestion . . . or as long as six weeks later. Exposure to some metals, such as methylmercury, may take months before any effects are seen because the mercury levels in the body may take time to build up.
What should pregnant women do if they experience symptoms of foodborne illness?	<p><i>Pregnant women who experience symptoms of foodborne illness should check with their doctor or healthcare provider immediately.</i> And, if they become ill after eating out, they should also call their local health department, so the department can investigate to see if there’s a serious foodborne illness outbreak in the area.</p> <p>A doctor may perform a blood test or request a stool sample for testing. Maintaining hydration is an important part of the treatment, especially if the mother is vomiting and/or has diarrhea. Antibiotics that are safe to use during pregnancy may be prescribed by a doctor to get rid of the mother’s infection. The antibiotics may also prevent infection of the fetus or newborn. Antibiotics may also be given to babies who are born with foodborne illness.</p>
How can pregnant women prevent foodborne illness?	That’s what the <i>Food Safety for Moms-to-Be</i> program is all about! Preventing foodborne illness is really quite easy. All it takes is careful food selection and following these 4 Simple Steps . . .

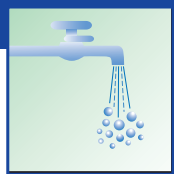


NOTE

Pregnant women should see their doctor or healthcare provider if they have questions about foodborne illness.

Good food safety practices will benefit pregnant women and their families for a lifetime!

4 Simple Steps to Food Safety



Step 1 CLEAN

Wash Hands and Surfaces Often

Foodborne pathogens, such as bacteria, parasites, and viruses, are invisible without a microscope and can spread throughout the kitchen and get on cutting boards, utensils, sponges, countertops, and food. If eaten, harmful foodborne pathogens can cause foodborne illness. Clean hands and surfaces are the **first step** in safe food handling.

Clean Hands Are Key!

How to Wash Hands:

- Wet hands thoroughly with warm water and add soap.
- Thoroughly scrub hands, wrists, fingernails, and in between fingers — for at least 20 seconds.
- Rinse, then dry hands with a clean cloth towel or use a paper towel so the germs are thrown away.

When to Wash Hands:

- *Before* and *after* handling food.
- *After* using the bathroom, changing diapers, or handling pets.

Keep these Handy . . .

- Make sure there are handwashing soap and paper towels or a clean cloth towel at every sink.
- If soap and water aren't available, alcohol-based wipes or gel formulas are effective for sanitizing hands.

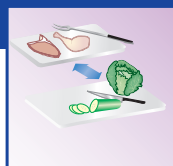
Surface Safety

- Wash cutting boards, dishes, utensils (including knives), and countertops with hot, soapy water *after* preparing each food item and *before* going on to the next food.
- Consider using paper towels to clean up kitchen surfaces. Then, throw the germs away with the towels! If cloth towels are used, launder them often using hot water.

Note: Don't dry hands with a towel that was previously used to clean up raw meat, poultry, or seafood juices. These raw juices may contain harmful pathogens that can spread to hands and throughout the kitchen.

Sanitize It!

Periodically sanitize kitchen countertops using a kitchen sanitizer. One teaspoon of liquid chlorine bleach per quart of clean water can also be used to sanitize surfaces. Leave the bleach solution on the surface for about 10 minutes to be effective.



Step 2 SEPARATE

Separate, Don't Cross-Contaminate

Raw animal foods such as meat, poultry, seafood, eggs, and unpasteurized milk products can contain harmful pathogens. Improper handling of these foods can set the stage for **cross-contamination** — the spread of pathogens from foods, hands, utensils, or food preparation surfaces to another food.

Safely Separate

- Separate raw meat, poultry, and seafood from ready-to-eat foods in the grocery shopping cart, refrigerator, and while preparing and handling foods at home. Consider placing these raw foods inside plastic bags in your grocery shopping cart to keep the juices contained.

Seal It

- To prevent juices from raw meat, poultry, or seafood from dripping onto other foods in the refrigerator, place these raw foods in *sealed* containers or *sealable* plastic bags.

Lather Up

- Thoroughly wash cutting boards, dishes, and utensils (including knives) with soap and hot water after they come in contact with raw meat, poultry, seafood, eggs, and unwashed fresh produce.

Clean Your Plate

- Place cooked food on a clean plate for serving. If cooked food is placed on an unwashed plate that previously held raw meat, poultry, or seafood, bacteria from the raw food could contaminate the cooked food.

Cutting Boards: Take Two

- If possible, use one cutting board for raw meat, poultry, and seafood and another one for fresh fruits and vegetables.
- If two cutting boards aren't available, prepare fruits and vegetables first, and put them safely out of the way. Wash the cutting board thoroughly with soap and hot water. Then, prepare the raw meat, poultry, or seafood. Follow by washing the cutting board again.

Marinating Mandate

- Marinades used on raw meat, poultry, or seafood can contain harmful bacteria. Don't re-use these marinades on cooked foods, unless they're boiled first.
- Never taste uncooked marinade or sauce that was used to marinate raw meat, poultry, or seafood.

For more information



See the "Lifelong Food Safety" section of the website for more about the 4 Simple Steps to Food Safety.

4 Simple Steps to Food Safety



Step 3 COOK

Cook to Proper Temperatures

Heating foods to the right temperature for the proper amount of time kills harmful bacteria that cause foodborne illness. Use a food thermometer to check the internal food temperature.

Meat and Poultry

- Cook ground beef, veal, lamb, and pork to at least 160° F (71° C).
- Cook turkey, chicken, and duck (whole, pieces, and ground) to 165° F (74° C).
- Cook beef, pork, veal, and lamb roasts and chops to at least 145° F (63° C), with a 3-minute rest time.

Eggs

- Cook eggs until the yolks and whites are firm.
- Cook fried eggs for 2 to 3 minutes on each side, 4 minutes in a covered pan.
- Cook scrambled eggs until they're firm throughout.
- Don't use recipes in which eggs remain raw or only partially cooked, *unless* pasteurized eggs in the shell (or from a carton) are used. These eggs can be found in the refrigerator section of some local supermarkets and are labeled "pasteurized."

Seafood

Finfish should be cooked to an internal temperature of 145° F (63° C). When a food thermometer is not available or appropriate, follow these tips to determine when seafood is done:

- Cook fish until it's opaque (milky white) and flakes with a fork.
- Cook shrimp, lobster, and scallops until they reach their appropriate color. The flesh of shrimp and lobster should be an opaque (milky white) color. Scallops should be opaque (milky white) and firm.

The Danger Zone . . .

This refers to the range of temperatures at which bacteria can grow — usually between 40° and 140° F (4° and 60° C). For food safety, keep food *below* or *above* the "danger zone."

Remember the **2-Hour Rule**:

Discard any perishables (foods that can spoil or become contaminated by bacteria if unrefrigerated) left out at room temperature for more than two hours. When temperatures are above 90° F (32° C), discard food after one hour.



- Cook clams, mussels, and oysters until their shells open. This means that they are done. Throw away the ones that didn't open.
- Shucked clams and shucked oysters are fully cooked when they are opaque (milky white) and firm.

Leftovers

- Reheat leftovers to 165° F (74° C).
- Bring leftover sauces, soups, and gravies to a boil.
- Don't leave food out at room temperature for more than two hours. On a hot day (90° F or higher), reduce this time to one hour.



Step 4 CHILL

Refrigerate Promptly

At room temperature, harmful bacteria can grow rapidly in food. The more bacteria there are, the greater the chances of becoming sick. Cold temperatures keep most harmful bacteria from multiplying, so keep perishable foods in the refrigerator. Note: *Listeria monocytogenes* is a harmful bacterium that can grow at refrigerator temperatures, see pages 8 and 9.

Cool Rules

- Your refrigerator should register at 40° F (4° C) or below and the freezer at 0° F (-18° C). Place a refrigerator thermometer in the refrigerator, and check the temperature periodically.
- Refrigerate or freeze perishables, prepared food, and leftovers within two hours of eating or preparation.
- Use ready-to-eat, perishable foods (dairy, meat, poultry, and seafood) as soon as possible.
- Hot food won't harm your refrigerator, so it's okay to place hot food inside. But, be sure to divide large amounts of leftovers into shallow containers for quicker cooling.
- Marinate foods in the refrigerator — not at room temperature.

Don't Pack the Refrigerator . . .

- Don't pack the refrigerator too full with food. Cold air must circulate to keep food safe.

. . . But Be Sure to Pack the Portable Cooler

- At outdoor events, use a portable cooler to keep perishable foods cold. And, fill the cooler with food and ice or cold packs. A full cooler will maintain its cold temperatures longer than one that's partially filled.



For more information

See the "Lifelong Food Safety" section of the website for more about the 4 Simple Steps to Food Safety and the "Refrigerator and Freezer Storage" chart under "Chill," which highlights the recommended storage times for foods.

Special Precautions for Moms-to-Be

Raw Eggs

Some eggs can be contaminated with *Salmonella Enteritidis*, a harmful bacterium. **Pregnant women should follow these tips:**

- Cook eggs thoroughly until the yolks and whites are firm. Cook fried eggs for 2 to 3 minutes on each side, or cook 4 minutes in a covered pan. Cook scrambled eggs until they're firm throughout. Boil eggs in the shell for 7 minutes.
- Avoid eating or tasting foods that may contain raw or lightly-cooked eggs, such as:
 - Batter, filling, or raw cookie dough made with raw eggs
 - Eggnog and other egg-fortified beverages that are not thoroughly cooked
 - Dressings and sauces made with raw eggs:
 - Caesar salad dressing
 - Hollandaise sauce
 - Béarnaise sauce
 - Homemade mayonnaise
 - Ice cream
 - Mousse
 - Meringue



Note: Use store-bought forms of the foods listed, which are often already cooked or pasteurized, or make recipes that call for raw eggs safer by adding the eggs to the amount of liquid called for in the recipe, then heating the mixture thoroughly. Or, use pasteurized eggs in the shell or carton. These eggs may be found in the refrigerator section of some supermarkets and are labeled "pasteurized."

Pasteurized Eggs in the Shell?

Traditionally, eggs sold to consumers have not been pasteurized. Today, some manufacturers are pasteurizing eggs in the shell. This means heat is applied to the egg while it's still in the shell! This process kills any harmful bacteria that might be present. Liquid pasteurized eggs may also be sold in cartons.

Unpasteurized Milk

Unpasteurized (raw) milk and soft cheeses made from unpasteurized milk may be contaminated with *Listeria monocytogenes* or other harmful pathogens. Pregnant women should drink milk only if it is pasteurized, eat hard or processed cheeses, and eat soft cheeses only if they are made from pasteurized milk.

Fresh Fruits and Vegetables, Juices

Harmful bacteria on the outside of fruits or vegetables can spread to the *inside* when produce is peeled, cut, or fresh-squeezed. **Here's how pregnant women can prevent foodborne illness from fruits, vegetables, and juices:**

Raw Fruits and Vegetables

- Thoroughly rinse raw fruits and vegetables under running water *before* eating or preparing them, especially fruits that require peeling or cutting — like cantaloupe and other melons.
- As an added precaution, use a small produce brush to remove surface dirt. Try to cut away damaged or bruised areas — bacteria can thrive in these places.



Raw Sprouts (including alfalfa, clover, radish, and mung bean)

Bacteria can often get into the sprout seeds through cracks in the shell *before* sprouts are grown. Once this occurs, these bacteria are nearly impossible to wash out. To be safe:

- Avoid eating raw sprouts of any kind.
- Cook sprouts thoroughly.
- When eating out, check sandwiches and salads for raw sprouts. Request that raw sprouts not be added to your food.

Juices

- Only drink juices that have been pasteurized or otherwise treated to kill harmful bacteria.

For more information



See the "Safe Eats" section of the website for more detailed food safety tips by food category.

Pasteurized Juice: Where to Find It



Pasteurized or Shelf-stable Juice

Pasteurized juice can be found in the refrigerated or frozen juice sections of stores. Like milk, pasteurized juice must be refrigerated or frozen.

Shelf-stable juice is able to be stored unrefrigerated on the shelf and is normally found in the non-refrigerated juice section of stores. It's packaged in shelf-stable containers, such as boxes, bottles, or cans.



Unpasteurized or Untreated Juice

These are normally found in the refrigerated sections of grocery stores, health-food stores, cider mills, or farm markets. Such juices must have this warning on the label:

WARNING: This product has not been pasteurized, and therefore, may contain harmful bacteria that can cause serious illness in children, the elderly, and persons with weakened immune systems.

Note: Juices that are fresh-squeezed and sold by the glass, such as at farmer's markets, at roadside stands, or in some juice bars, may not be pasteurized or otherwise treated to ensure their safety. Warning labels are not required on these products. Pregnant women and young children should avoid these juices.

If you can't tell if a juice has been processed to destroy harmful bacteria, either *don't* use the product — or boil it before using it to kill any harmful bacteria.

Foodborne Risks *for* Moms-to-Be

How Methylmercury Could Affect an Unborn Child

What is methylmercury?

Methylmercury is a metal that can be found in certain fish. The methylmercury in these fish can be harmful to unborn babies if these fish are eaten by pregnant women.

Mercury occurs naturally in the environment and can also be released into the air through industrial pollution. It falls from the air and can get into surface water, accumulating in streams and oceans. Bacteria in the water cause chemical changes that transform **mercury** into **methylmercury**, which can be toxic. Fish absorb methylmercury as they feed on aquatic organisms.

Is there methylmercury in all fish?

Nearly all fish contain traces of methylmercury. However, larger fish that have lived longer have the highest levels of methylmercury because they've had more time to accumulate it. These large fish pose the greatest risk to pregnant women who eat them regularly.

How can pregnant women become exposed to methylmercury?

Fish in the diet is the major source of methylmercury, and eating certain types of fish leads to the accumulation of methylmercury in the body. Methylmercury can build up in the blood stream, and can then pass from the mother's blood into that of her unborn child.

Methylmercury is removed from the body naturally, but it may take **over a year** to drop to a safe level. Thus, it may be present in a woman even **before** she becomes pregnant. This is one of the reasons women who are trying to become pregnant should also avoid eating certain types of fish.



How can pregnant women tell if they've been exposed to methylmercury?

The mother will not show noticeable symptoms from eating commercial seafood, but her newborn may experience symptoms (see next question).

How can methylmercury affect an unborn baby or young child?

For most people, the risk from methylmercury by eating fish and shellfish is not a health concern. Yet, some fish and shellfish contain higher levels of methylmercury that may harm an unborn baby or young child's developing nervous system.

What types of fish should pregnant women — or women trying to become pregnant — avoid eating?

These women, along with nursing mothers and young children, **should not** eat the following fish, as they can contain high levels of methylmercury:

- Swordfish
- Tilefish
- King mackerel
- Shark

It's okay to eat other cooked fish/seafood as long as a variety of other kinds are selected during pregnancy or while a woman is trying to become pregnant. She can eat up to 12 ounces (2 average meals) a week of a variety of fish and shellfish that are lower in methylmercury.

- Five of the most commonly eaten fish and shellfish that are low in methylmercury are shrimp, canned light tuna, salmon, pollock, and catfish.
- Another commonly eaten fish, albacore ("white") tuna has more methylmercury than canned light tuna. So, when choosing your two meals of fish and shellfish, you may eat up to 6 ounces (one average meal) of albacore tuna per week.

Foodborne Risks *for* Moms-to-Be

Listeria monocytogenes: *A Hidden Threat to Moms-to-Be and Their Babies*

What is *Listeria monocytogenes*?

Listeria monocytogenes is a harmful bacterium that can be found in the following sources:

- Raw or undercooked animal foods such as unpasteurized milk, unpasteurized milk products (for example, soft and blue veined cheeses), meat, poultry, and seafood.
- Refrigerated, ready-to-eat foods such as hot dogs, deli meats, luncheon meats, poultry, and seafood
- Contaminated fresh fruits (e.g., cantaloupes) and vegetables
- Produce harvested from soil contaminated with *L. monocytogenes*.

Many animals can carry this bacterium without appearing ill, and thus, it can be found in foods made from animals. *L. monocytogenes* is unusual because it can grow at refrigerator temperatures, whereas most other foodborne bacteria do not. When eaten, it may cause listeriosis, an illness to which pregnant women and their unborn child are very susceptible.

How can pregnant women get listeriosis?

Pregnant women can get listeriosis by eating foods, such as those listed above, that are contaminated with *L. monocytogenes*. Pregnant women can also get listeriosis by eating contaminated foods processed or packaged in unsanitary conditions or by eating fruits and vegetables that are contaminated from the soil or from manure used as fertilizer.

- FACT**
- Most *L. monocytogenes* infections occur during the third trimester of pregnancy. At this stage of pregnancy, the mother is more susceptible to listeriosis. However, *L. monocytogenes* infections that occur during the first trimester of pregnancy tend to have more severe fetal consequences.
 - The serious effects of listeriosis in pregnancy are often manifested by the fetus or newborn rather than the pregnant woman.

How can listeriosis affect pregnant women?

The symptoms can take a few days or even weeks to appear and may include: fever, chills, muscle aches, diarrhea or upset stomach, headache, stiff neck, confusion, and loss of balance. If a pregnant woman experiences any of the above symptoms, she should see her doctor or healthcare provider immediately. In more serious cases, listeriosis could lead to the mother's death.

Most of the time, pregnant women who have listeriosis experience no symptoms and don't feel sick. Thus, they can pass the infection to their unborn babies without even knowing it. That's why *prevention* of listeriosis is very important.

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- *Pregnant women are about 10 times more likely than other healthy adults to get listeriosis.*
- *It's estimated that about one in seven (14%) of all Listeria monocytogenes cases occur in pregnant women.*

— Centers for Disease Control and Prevention

How can listeriosis affect fetuses or newborns?

Although most *L. monocytogenes* infections occur during the third trimester of pregnancy, in the first trimester they can cause more severe consequences—including miscarriage. They can also lead to premature labor, delivery of a low-birth-weight infant, or infant death.

Fetuses who have a late infection may develop a wide range of health problems, including intellectual disability, paralysis, seizures, blindness, or impairments of the brain, heart, or kidney. In newborns, *L. monocytogenes* can cause blood infections and meningitis.

- FACT**
- L. monocytogenes* is one of the most common causes of miscarriage resulting from infection of the fetus.

How Pregnant Women Can Reduce the Risk of Listeriosis

Time to Chill Fridge Tips

- Your refrigerator should register at 40° F (4° C) or below and the freezer at 0° F (-18° C). Place a refrigerator thermometer in the refrigerator, and check the temperature periodically. During the automatic defrost cycle, the temperature may temporarily register slightly higher than 40° F. This is okay.
- Refrigerate or freeze perishables, prepared food, and leftovers within two hours of eating or preparation. Follow the **2-Hour Rule**: Discard food that's left out at room temperature for longer than two hours. When temperatures are above 90° F (32° C), discard food after one hour.
- Use ready-to-eat, perishable foods, such as dairy, meat, poultry, seafood, and produce, as soon as possible. Remember, *Listeria monocytogenes* grows at refrigerator temperatures, so the longer a food is in the refrigerator the more bacteria it will contain.

Fridge Tips

- Clean your refrigerator regularly.
- Wipe up spills immediately.
- Clean the inside walls and shelves with hot water and a mild liquid dishwashing detergent; then rinse.
- Once a week, check expiration and "use by" dates, and throw out foods if the date has passed. Follow the recommended storage times for foods. See the "Lifelong Food Safety" section of the website for the "Refrigerator & Freezer Storage" chart. Click on "Chill."

To Eat or Not to Eat?



Don't eat:

- Soft cheeses like Feta, Brie, Camembert, "blue-veined cheeses," or "queso blanco," "queso fresco," or Panela — *unless they're made with pasteurized milk*. Make sure the label says, "made with pasteurized milk."
- Hot dogs, deli meats, and luncheon meats — *unless they're reheated until steaming hot*.
- Refrigerated pâtés or meat spreads.
- Refrigerated smoked seafood — *unless it's in a cooked dish*, such as a casserole. (Refrigerated smoked seafood, such as salmon, trout, whitefish, cod, tuna, or mackerel, is most often labeled as "nova-style," "lox," "kippered," "smoked," or "jerky." These types of fish are found in the refrigerator section or sold at deli counters of grocery stores and delicatessens.)
- Unpasteurized (raw) milk or foods that contain it.



It's okay to eat:

- Canned or shelf-stable (able to be stored unrefrigerated on the shelf) pâtés and meat spreads.
- Canned or shelf-stable, smoked seafood.
- *Pasteurized* milk or foods that contain it.

Listeriosis & Pregnant Hispanic Women

Studies show that Hispanic pregnant women may have a higher incidence of listeriosis than pregnant non-Hispanic women. This is most likely because they might make and eat homemade soft cheese and other traditional foods made from unpasteurized milk. "Queso fresco" — a traditional homemade cheese prepared from unpasteurized milk and widely consumed by Hispanics — has led to miscarriages, death of newborns, and premature delivery caused by *L. monocytogenes*.

To reduce the risk of listeriosis, Hispanic pregnant women should not eat homemade soft cheeses and other traditional foods made from unpasteurized milk. Like all other pregnant women, they should follow the food safety precautions above.



NOTE

Pregnant women should see their doctor or healthcare provider if they have questions about listeriosis.

Toxoplasma gondii: A Parasite That Can Harm Mother and Baby

What is Toxoplasma gondii?

Toxoplasma gondii is a parasite found in raw and undercooked meat; unwashed fruits and vegetables; contaminated water; dust; soil; dirty cat-litter boxes; and outdoor places where cat feces can be found. It can cause an illness called toxoplasmosis, which can be particularly harmful to pregnant women and their unborn babies.

How can pregnant women get toxoplasmosis?

They can get this illness by . . .

- Eating raw or undercooked meat, especially pork, lamb, or venison, or by touching their hands to their mouth after handling undercooked meat.
- Using contaminated knives, utensils, cutting boards and foods that have had contact with raw meat.
- Drinking water contaminated with *T. gondii*.
- Accidentally ingesting contaminated cat feces, which can occur if they touch their hands to their mouth after gardening, cleaning a litter box, or touching anything that comes in contact with cat feces.

S • T • A • T • S

- **About 85% of pregnant women in the U.S. are at risk of being infected with toxoplasmosis.**
— American Journal of Epidemiology
- **Women infected with *T. gondii* during pregnancy can transmit the infection across the placenta to their fetuses. The risk of congenital disease is lowest (10-25%) when acute maternal infection occurs during the first trimester and highest (60-90%) when acute maternal infection occurs during the third trimester. However, the severity of disease is worse if infection is acquired in the first trimester... Most infants infected in utero are born with no obvious signs of toxoplasmosis on routine examination, but up to 80% develop learning and visual disabilities later in life if they are followed into adulthood.**
— Obstetrical and Gynecological Survey

How can toxoplasmosis affect pregnant women?

Symptoms typically include: swollen glands, fever, headache, muscle pain, or a stiff neck. Toxoplasmosis can be difficult to detect. Some women infected with the parasite may not have noticeable symptoms — so a pregnant woman can easily expose her fetus to toxoplasmosis without even being aware that she's ill.

That's why **prevention** of toxoplasmosis is very important. If the mother experiences any of the above symptoms, she should see her doctor or healthcare provider immediately.

Pregnant women with HIV are particularly at risk for developing toxoplasmosis.

How can toxoplasmosis affect fetuses or newborns?

Infants born to mothers who became infected with *T. gondii* for the first time **just before** or **during pregnancy** are at risk for severe toxoplasmosis. An infection during the first trimester, when the central nervous system is being formed, may be fatal to the fetus. An infection that occurs as the pregnancy progresses may be relatively mild.

In babies, *T. gondii* can cause hearing loss, intellectual disability, and blindness. Some children can develop brain or eye problems years after birth. Children born infected with *T. gondii* can also require years of special care, including special education and ophthalmology care. **Early identification and treatment of children infected with *T. gondii* is essential in order to minimize the parasite's effects.**

S • T • A • T • S

- **It's estimated that toxoplasmosis infects between 400 and 4,000 fetuses in the U.S. each year.**
— Centers for Disease Control and Prevention
- **By age 20, as many as 80% of children born with toxoplasmosis that was left untreated develop impairments ranging from intellectual disability to blindness.**
— Council for Agricultural Science and Technology
- **About 50% of toxoplasmosis infections in the U.S. each year are acquired from food.**
— Centers for Disease Control and Prevention

How Pregnant Women Can Prevent Toxoplasmosis



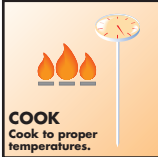
CLEAN

- Wash hands with soap and warm water after touching soil, sand, raw meat, cat litter, or unwashed fruits and vegetables.
- Wash all cutting boards and knives thoroughly with soap and hot water after each use.
- Thoroughly wash and/or peel all fruits and vegetables before eating them.



SEPARATE

- Separate raw meat from other foods in the grocery shopping cart, refrigerator, and while preparing and handling foods at home.



COOK

- Cook meat thoroughly.
- Check the internal temperature of meat with a food thermometer.
- Don't sample meat until it's cooked.

Don't Drink the Water!

Avoid drinking untreated water, particularly when traveling in less-developed countries.

For Cat-Lovers . . .

A pregnant woman doesn't have to give her cat away, but she should be aware that *T. gondii* infects essentially all cats that spend any time outdoors. Cats get this parasite by eating small animals or raw meat that's been infected. The parasite is then passed on through the cat's feces. It doesn't make the cat sick, so a pregnant woman may not know if her cat has the parasite.

Follow these tips:

- If possible, have someone else change the litter box. If a pregnant woman has to clean it, she should wear disposable gloves and wash her hands thoroughly with soap and warm water afterwards.
- Change the litter box daily. The parasite doesn't become infectious until one-to-five days after it's shed in the feces.
- Wear gloves when gardening or handling sand from a sandbox because cats may have excreted feces in them. Be sure to wash hands with soap and warm water afterwards.
- Cover outdoor sandboxes to prevent cats from using them as litter boxes.
- Feed cats commercial dry or canned food. Never feed cats raw meat because it can be a source of the *T. gondii* parasite.
- Keep indoor cats indoors. Be especially cautious if outdoor cats are brought indoors.
- Avoid stray cats, especially kittens.
- Don't get a new cat during pregnancy.



If pregnant women have a cat and are concerned about exposure to *T. gondii*, they should talk to their doctor or healthcare provider.



How to Protect Yourself and Your Baby

What is foodborne illness?

- It's a sickness that occurs when people eat or drink harmful microorganisms (bacteria, parasites, viruses) or chemical contaminants found in some foods or drinking water.
- Symptoms vary, but in general can include stomach cramps, vomiting, diarrhea, fever, headache, or body aches. Sometimes you may not feel sick, but whether you feel sick or not, you can still pass the illness to your unborn child without even knowing it.

Why are pregnant women at high risk?

- You and your growing fetus are at high risk from some foodborne illnesses because during pregnancy your immune system is altered, which may make it harder for your body to fight off some harmful foodborne microorganisms.
- Your unborn baby's immune system is not developed enough to fight off harmful foodborne microorganisms.
- For both mother and baby, foodborne illness can cause serious health problems — or even death.



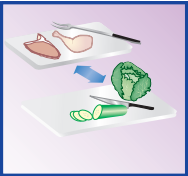
Tips for a Lifetime

There are many bacteria that can cause foodborne illness, such as *E. coli* O157:H7 and *Salmonella*. Here are **4 Simple Steps** you should follow to keep yourself and your baby healthy during pregnancy and beyond!



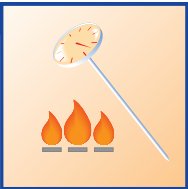
1. CLEAN

- Wash hands thoroughly with warm water and soap.
- Wash hands *before* and *after* handling food, and after using the bathroom, changing diapers, or handling pets.
- Wash cutting boards, dishes, utensils, and countertops with hot water and soap.
- Rinse raw fruits and vegetables thoroughly under running water.



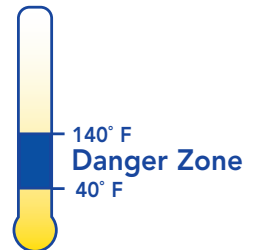
2. SEPARATE

- Separate raw meat, poultry, and seafood from ready-to-eat foods.
- If possible, use one cutting board for raw meat, poultry, and seafood and another one for fresh fruits and vegetables.
- Place cooked food on a clean plate. If cooked food is placed on an unwashed plate that held raw meat, poultry, or seafood, bacteria from the raw food could contaminate the cooked food.



3. COOK

- Cook foods thoroughly. Use a food thermometer to check the temperature. See the "Lifelong Food Safety" section of the website for the "Apply the Heat" chart of recommended cooking times for foods. Click on "Cook."
- Keep foods out of the **Danger Zone**: The range of temperatures at which bacteria can grow — usually between 40° F and 140° F (4° C and 60° C).
- **2-Hour Rule**: Discard foods left out at room temperature for more than two hours.



4. CHILL

- Your refrigerator should register at 40° F (4° C) or below and the freezer at 0° F (-18° C). Place an appliance thermometer in the refrigerator, and check the temperature periodically.
- Refrigerate or freeze perishables (foods that can spoil or become contaminated by bacteria if left unrefrigerated).
- Use ready-to-eat, perishable foods (dairy, meat, poultry, seafood) as soon as possible.

3 Foodborne Risks for Pregnant Women

As a mom-to-be, there are **3 specific foodborne risks** you need to be aware of. These risks can cause serious illness or death to you or your unborn child. Follow these steps to help ensure a healthy pregnancy.

	What it is	Where it might be found	How to prevent illness
<u>LISTERIA MONOCYTOGENES</u>	A harmful bacterium that can grow at refrigerator temperatures where most other foodborne bacteria do not. It causes an illness called listeriosis.	<ul style="list-style-type: none"> Refrigerated, ready-to-eat foods. Raw or undercooked animal foods such as unpasteurized milk and unpasteurized milk products, meat, poultry, and seafood. Contaminated fresh produce. Soil. 	<ul style="list-style-type: none"> Follow the 4 Simple Steps on previous page. Do not eat hot dogs, deli meats, and luncheon meats — <i>unless they're reheated</i> until steaming hot. Do not eat soft cheese, such as Feta, Brie, Camembert, "blue-veined cheeses," "queso blanco," "queso fresco," and Panela — <i>unless they're labeled as made with pasteurized milk. Check the label.</i> Do not eat refrigerated pâtés or meat spreads. Do not eat refrigerated smoked seafood — <i>unless it's in a cooked dish, such as a casserole.</i> (Refrigerated smoked seafood, such as salmon, trout, whitefish, cod, tuna, or mackerel, is most often labeled as "nova-style," "lox," "kippered," "smoked," or "jerky." These types of fish are found in the refrigerator section or sold at deli counters of grocery stores and delicatessens.) Do not drink raw (unpasteurized) milk or eat foods that contain unpasteurized milk.
<u>METHYL-MERCURY</u>	A metal that can be found in certain fish. At high levels, it can be harmful to an unborn baby's or young child's developing nervous system.	Large, long-lived fish, such as shark, tilefish, king mackerel, and swordfish.	<ul style="list-style-type: none"> Don't eat shark, tilefish, king mackerel, and swordfish. These fish can contain high levels of methylmercury. It's okay to eat other cooked fish/seafood, as long as a variety of other kinds are selected during pregnancy or while a woman is trying to become pregnant. She can eat up to 12 ounces (2 average meals) a week of a variety of fish and shellfish that are lower in methylmercury. <ul style="list-style-type: none"> Five of the most commonly eaten fish and shellfish that are low in methylmercury are shrimp, canned light tuna, salmon, pollock, and catfish. Another commonly eaten fish, albacore ("white") tuna has more methylmercury than canned light tuna. So, when choosing your two meals of fish and shellfish, you may eat up to 6 ounces (one average meal) of albacore tuna per week.
<u>TOXOPLASMA GONDII</u>	A harmful parasite that causes an illness called toxoplasmosis. It can be difficult to detect.	Raw and undercooked meat; unwashed fruits and vegetables; soil; dirty cat-litter boxes; and outdoor places where cat feces can be found.	<ul style="list-style-type: none"> Follow the 4 Simple Steps on previous page. Have someone else change the litter box. If you have to clean it, wash your hands with soap and warm water afterwards. Wear gloves when gardening or handling sand from a sandbox. Don't get a new cat while pregnant. Cook meat thoroughly; see the "Apply the Heat" chart on the website for the proper temperatures.

For more information

- See your doctor or healthcare provider if you have questions about foodborne illness.
- FDA Food Information line: **1-888-SAFE FOOD**
- FDA Center for Food Safety and Applied Nutrition: www.fda.gov/food
- Gateway to Government Food Safety Information: www.foodsafety.gov
- U.S. Partnership for Food Safety Education: www.fightbac.org

This fact sheet is a condensed guide to food safety.
For more in-depth information, be sure to check out:

Food Safety for Moms-to-Be
www.fda.gov/pregnancyfoodsafety



Food Safety *for* Moms-to-Be

Presentation Overview

Now you're ready to start preparing for your presentation! To minimize your preparation time, we've developed an easy-to-implement presentation for you. See pages 15 - 16 for a basic presentation outline. It will help familiarize you with critical points to relay to your audience.

For the **complete** PowerPoint® presentation (including slides, talking points, and supporting materials), go to www.fda.gov/pregnancyfoodsafety, choose **Food Safety for Moms-to-Be**, and click on "Educator Tools."

Supporting Materials for Your Presentation!

Review and print these helpful supporting materials from the FDA website — just click on "Educator Tools."

- **Presentation Tips** (for getting people to your presentation)
- **Customizable Flyer** (for publicizing your presentation)
- **Food Safety Awareness Poster** (to hang in a prominent location)
- **Handouts for Your Audience:**
 - **"Food Safety At-A-Glance"** fact sheet (important food safety reminders)
You can also copy the same fact sheet from pages 12 - 13 of this Guide.
 - **"Apply the Heat"** chart (proper cooking temperatures for foods)
 - **"Refrigerator & Freezer Storage"** chart (proper storage times for foods)

Explore the website for more food safety handouts.

GETTING STARTED

You can develop your presentation by downloading the PowerPoint® presentation and running it from your computer, or you can launch it directly from the website at www.fda.gov/pregnancyfoodsafety.

SET UP

You will need:

- TV and DVD player
- Computer with PowerPoint® presentation and LCD projector
or overhead projector and transparencies or Internet access to show the online video
- Projector screen or light-colored blank wall
- Photocopies of handouts for each participant:
 - "Food Safety At-A-Glance" fact sheet
 - "Apply the Heat" chart
 - "Refrigerator & Freezer Storage" chart

Food Safety for Moms-to-Be

Presentation Outline

Suggested Presentation Timing: Approx. 60 - 75 minutes

For presentation slides and talking points, visit **Food Safety for Moms-to-Be** at www.fda.gov/pregnancyfoodsafety. Click on "Educator Tools."

INTRODUCTION

Timing: Approx. 10 - 15 minutes

1. Welcome (introductory slide)

2. Foodborne Illness

What is it?

- Caused by harmful microorganisms or chemical contaminants
- Get it by eating or drinking foods or water that are contaminated

3. Common Symptoms

- Stomach cramps
- Vomiting
- Diarrhea

Discussion Before Viewing Video

4. True or False?

- Foodborne illness isn't a serious issue
- Foodborne illness doesn't affect me
- Foodborne illness can't affect my unborn baby

SHOW VIDEO

Timing: Approx. 20 minutes

REVIEW AND WRAP UP

Timing: Approx. 30 - 40 minutes

5. Foodborne Illness and Pregnancy

(opening slide)

Answers to True/False Questions

6. True or False?

- Foodborne illness isn't a serious issue **(False)**

7. Foodborne Illness Statistics

Each year in U.S., foodborne illness causes:

- **48 million** gastrointestinal illnesses
- **128,000** hospitalizations
- **3,000** deaths

8. True or False?

- Foodborne illness doesn't affect me **(False)**

9. Pregnant Women are at Risk

- Altered immune system
- Serious health problems
- Premature delivery
- Miscarriage
- Death

10. True or False?

- Foodborne illness can't affect my unborn baby **(False)**

11. Unborn Babies are at Risk

- Foodborne bacteria crosses placenta
 - Infects unborn baby
- Fetus can't fight harmful bacteria
- Serious health problems
- Developmental delays
- Death

Preventing Foodborne Illness in 4 Steps

12. Prevention — 4 Simple Steps

- Clean
- Separate
- Cook
- Chill

13. Prevention — Step 1

Clean

- Wash hands with warm water and soap
 - How
 - When
- Wash surfaces and utensils with hot water and soap
- Thoroughly rinse fruits and vegetables under running water

14. Prevention — Step 2

Separate

- Raw foods from ready-to-eat foods

15. Prevention — Step 3

Cook

- Cook meat, poultry, and seafood to proper temperatures
- Use a food thermometer to check

(cont'd)

16. Prevention — Step 4

Chill

- Refrigerate leftovers immediately
- Don't leave perishables unrefrigerated more than 2 hours

2-Hour Rule!

17. Top 3 Foodborne Risks

- *Listeria monocytogenes*
- Methylmercury
- *Toxoplasma gondii*

18. Foodborne Risk #1

Listeria monocytogenes

- Bacterium causes listeriosis
- Infected fetuses can suffer intellectual disability, blindness, or paralysis

19. Listeriosis & Pregnant Women

- About 10 times more likely to get listeriosis than other healthy adults
- Estimated **14%** of all cases occur in pregnant women

20. How to Prevent Listeriosis

- Select foods carefully
- Use ready-to-eat, perishable foods ASAP
- Use refrigerator thermometer to assure inside temperature is 40° F or below
- Clean refrigerator regularly

21. Foodborne Risk #2

Methylmercury

- Metal in some fish
- High levels affect unborn baby's nervous system

22. How to Avoid Methylmercury

Don't eat large, long-lived fish

- Shark
- Swordfish
- King mackerel
- Tilefish

23. You Can Still Enjoy Fish!

- Five of the most commonly eaten fish and shellfish are lower in mercury:
 - Shrimp
 - Canned light tuna
 - Salmon
 - Pollock
 - Catfish
- 12 ounces per week

24. Foodborne Risk #3

Toxoplasma gondii

- Parasite causes toxoplasmosis
- Found in:
 - Cat feces
 - Raw and undercooked meat
 - Unwashed fruits and vegetables
 - Contaminated water

25. Impact of *Toxoplasma gondii*

- About **85%** pregnant women in U.S. at risk
- Each year in U.S.
 - Infects **400** to **4,000** fetuses
- Infected babies can suffer hearing loss, intellectual disability, and blindness

26. How to Prevent Toxoplasmosis

- Change litter box daily
- Feed cat commercial dry or canned food
- Cover outdoor sandboxes
- Keep indoor cats indoors
- Don't get new cat while pregnant

27. How to Prevent Toxoplasmosis (cont'd)

Don't forget to . . .

- **Clean:** Fruits and vegetables thoroughly
- **Separate:** Raw foods from ready-to-eat foods
- **Chill:** Meat thoroughly

28. Situations: What to Do If . . .

- I haven't been handling food carefully?
- I'm careful, but still get foodborne illness?

29. For More Information

- **FDA Website for Pregnant Women**
www.fda.gov/pregnancyfoodsafety
- **FDA Food Information Line**
1-888-SAFE FOOD

30. Questions & Answers (closing slide)

Note: After your presentation, distribute these handouts.

- "Food Safety At-A-Glance" fact sheet
- "Apply the Heat" chart
- "Refrigerator & Freezer Storage" chart

Food and Drug Administration

Center for Food Safety and Applied Nutrition
College Park, MD

Project Directors: Laura Fox (original);
Louise Dickerson (2005 to present)



Food Safety for Moms-to-Be

The FDA Food Safety Website for Pregnant Women
www.fda.gov/pregnancyfoodsafety

The FDA's Food Information Line: **1-888-SAFE FOOD**

