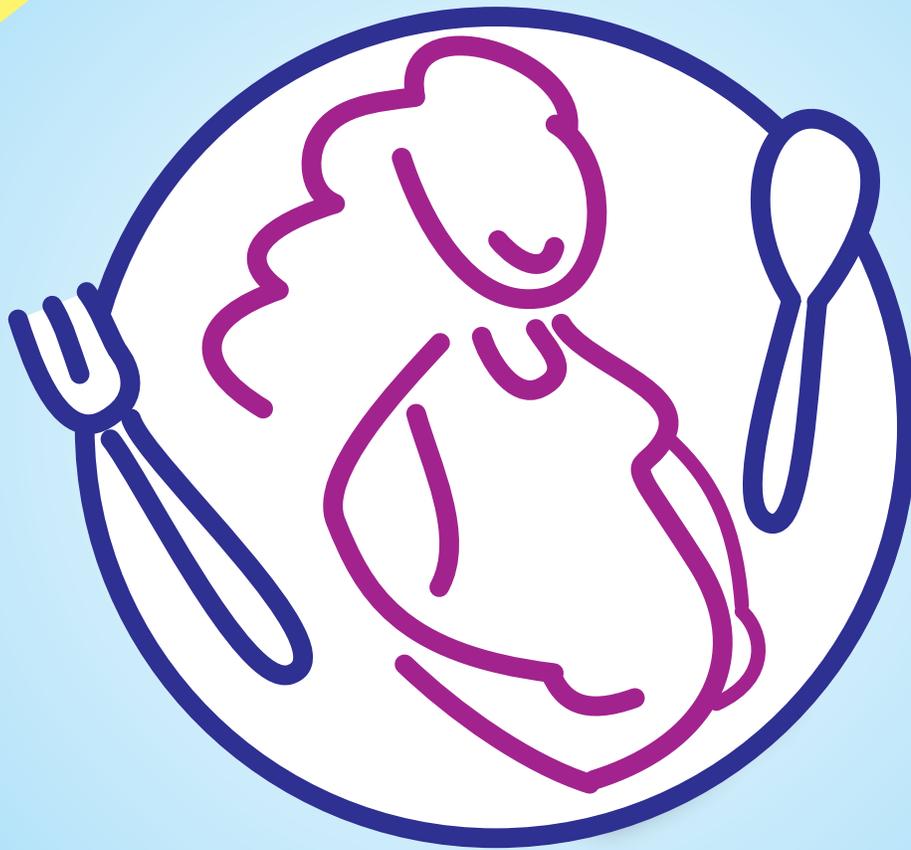


**Presentation
Information Inside!**



Food Safety *for* Moms-to-Be

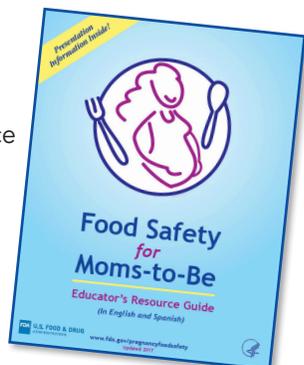
Educator's Resource Guide
(In English and Spanish)

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 handouts for your audience



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
- Videos

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



POSTER



Enhance your presentation with eye-opening **videos** that highlight food safety must-knows for moms-to-be.

Videos are on the website www.fda.gov/pregnancyfoodsafety under Educator Tools.



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 foodhandling 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.

If the women in your audience have health concerns, be supportive and let them know they should see their doctor or healthcare provider. Also, remind the group that prevention of foodborne illness is key *before, during, and after* their pregnancy!

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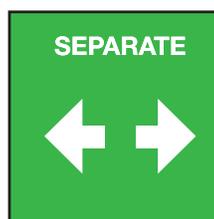
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Pregnancy & Foodborne Illness: Frequently Asked Questions

| | |
|--|---|
| 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, or 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 elements 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 1 to 3 days, but sickness can also occur in as soon as 20 minutes after ingestion . . . or as long as 6 weeks later. Exposure to some elements, 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

CLEAN



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.

SEPARATE



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

COOK



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:

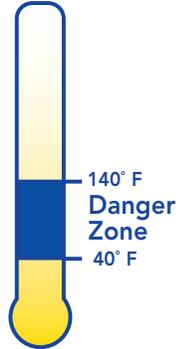
- Cook fish until it's opaque (milky white) and flakes with a fork.
- Cook shrimp, lobster, and scallops until they reach their appropriate color. The flesh of shrimp and lobster should be an opaque (milky white) color. Scallops should be opaque (milky white) and firm.

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 2 hours. When temperatures are above 90° F (32° C), discard food after 1 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 2 hours. On a hot day (90° F or higher), reduce this time to 1 hour.

CHILL



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 2 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.

Do 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.



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, or 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.

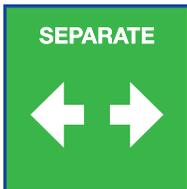
Tips for a Lifetime

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.



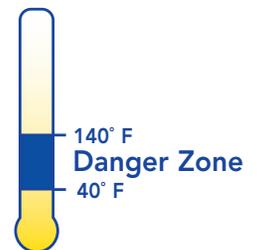
2. SEPARATE

- 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 2 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.

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

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.

S • T • A • T • S

- *Pregnant women are about 10 times more likely than other healthy adults to get listeriosis.*
 - *It's estimated that about one in six (17%) 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 2 hours of eating or preparation. Follow the **2-Hour Rule**: Discard food that's left out at room temperature for longer than 2 hours. When temperatures are above 90° F (32° C), discard food after 1 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.
- Frozen foods prepared according to package directions.

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.

For more resources, see FDA's *Preventing Listeriosis in Pregnant Hispanic Women in the U.S.* Community Educator's Guide.



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

Foodborne Risks *for* Moms-to-Be

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

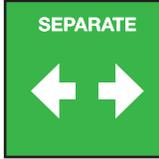
- *It's estimated that toxoplasmosis infects between 300 and 4,000 fetuses in the U.S. each year.*
— Centers for Disease Control and Prevention
- *By age 20, as many as 80% of children born with toxoplasmosis that was left untreated develop impairments ranging from intellectual disability to blindness.*
— 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.

Dietary Advice for Moms-to-Be

Nutritionists recommend that everyone consume a balanced diet, including:

- A variety of vegetables from all of the subgroups—dark green, red and orange, legumes (beans and peas), starchy, and other
- Fruits, especially whole fruits
- Grains, at least half of which are whole
- Fat-free or low-fat dairy, including milk, yogurt, cheese, and or fortified soy beverages
- A variety of protein foods, including seafood, lean meats and poultry, eggs, legumes (beans and peas) and nuts, seeds, and soy products
- Oils

In addition to this general dietary advice, there are *three key dietary* tips for Moms-to-Be to follow for their developing baby's health. These three tips matter even before you become pregnant, since some nutrients or unwanted elements may accumulate before you are pregnant or realize you are pregnant.

Dietary Tip #1: Folic Acid

Folic acid is a B vitamin and essential nutrient that helps prevent birth defects, such as neural tube defects, when taken *before* and *during* pregnancy. The neural tube begins developing into an unborn baby's spinal cord and brain during the first month of pregnancy, when a woman might not even know she is pregnant. Moms-to-Be can get adequate folic acid by eating the following foods:

- Leafy, dark green vegetables
- Legumes (dried beans and peas)
- Citrus fruits and juices
- Most berries
- Whole grains
- Breakfast cereals
- Fortified corn mesa

Women who are or who may become pregnant should consume **400 to 800 micrograms** of folic acid daily.

Dietary Tip #2: Advice About Eating Fish

Fish and other protein-rich foods have nutrients that can help a child's growth and development. Due to the evidence of benefits from eating fish, women who are pregnant or breastfeeding should consume at least 8 and up to 12 ounces per week of a variety of fish, from choices that are lower in methylmercury. In January 2017, FDA and EPA issued final advice regarding fish consumption based on levels of methylmercury in fish. *This advice is specifically for women who are pregnant, might become pregnant, or are breastfeeding...and for young children.*

Mercury is an element that occurs naturally in the environment and is also released to the environment through many types of human activity. It can collect in streams, lakes, and oceans and is turned into methylmercury in the water or sediment. It is this type of mercury that is present in fish. *Methylmercury can be harmful to the developing brain and nervous system.* The highest methylmercury levels are found in large, long-lived fish, such as king mackerel, marlin, orange roughy, shark, swordfish, tilefish (from the Gulf of Mexico), and bigeye tuna. So, Moms-to-Be should avoid these seven fish.

GOALS:

Moms-to-Be should eat 2 to 3 servings of a variety of fish each week from the "Best Choices" list or 1 serving a week from the "Good Choices" list. If you eat fish caught by family or friends, check for fish advisories. If there is no advisory, eat only 1 serving and no other fish that week.

Best Choices eat 2-3 servings a week

| | | |
|-------------------|-----------------------|--|
| Anchovy | Herring | Scallop |
| Atlantic croaker | Lobster, | Shad |
| Atlantic mackerel | American and spiny | Shrimp |
| Black sea bass | Mullet | Skate |
| Butterfish | Oyster | Smelt |
| Catfish | Pacific chub mackerel | Sole |
| Clam | Perch, | Squid |
| Cod | freshwater and ocean | Tilapia |
| Crab | Pickrel | Trout, freshwater |
| Crawfish | Plaice | Tuna, canned light (includes skipjack) |
| Flounder | Pollock | Whitefish |
| Haddock | Salmon | Whiting |
| Hake | Sardine | |

OR

Good Choices eat 1 serving a week

| | | |
|---|----------------------|--|
| Bluefish | Monkfish | (Atlantic Ocean) |
| Buffalofish | Rockfish | Tuna, albacore/white tuna, canned and fresh/frozen |
| Carp | Sablefish | Tuna, yellowfin |
| Chilean sea bass/ Patagonian toothfish | Sheepshead | Weakfish/seatrout |
| Grouper | Snapper | White croaker/ Pacific croaker |
| Halibut | Spanish mackerel | |
| Mahi mahi/dolphinfish | Striped bass (ocean) | |
| | Tilefish | |

Choices to Avoid HIGHEST MERCURY LEVELS

| | |
|---------------|---------------------------|
| King mackerel | Swordfish |
| Marlin | Tilefish (Gulf of Mexico) |
| Orange roughy | Tuna, bigeye |
| Shark | |

What is a serving?

To find out, use the palm of your hand!



For an adult
4 ounces



For children, ages 4 to 7
2 ounces

*Some fish caught by family and friends, such as larger carp, catfish, trout and perch, are more likely to have fish advisories due to mercury or other contaminants. State advisories will tell you how often you can safely eat those fish.

THIS ADVICE REFERS TO FISH AND SHELLFISH COLLECTIVELY AS "FISH."
/ ADVICE UPDATED JANUARY 2017

Dietary Tip #3: Grains

Moms-to-Be should consume a variety of foods, including varied grains (including wheat, oats, and barley), for good nutrition. Rice, which is a major global food source, is also a leading dietary source of a naturally-occurring form of arsenic that may have developmental effects on infants and lead to adverse pregnancy outcomes. By varying their grains, Moms-to-Be can promote better health for their babies.

For more information

- Talk with your doctor or healthcare provider if you have questions about your personal dietary needs.
- See Eating Fish: What Pregnant Women and Parents Should Know www.fda.gov/fishadvice.
- See For Consumers: Seven Things Pregnant Women and Parents Need to Know About Arsenic in Rice and Rice Cereal
- See the "Once Baby Arrives" section of the website for more details about handling and storing breast milk, making and storing infant formula, and what and how to feed your infant.

Key Tips for Moms-to-Be Summary

As a Mom-to-be, there are some important food topics you need to be aware of. Follow these steps to help ensure a healthy pregnancy.

Foodborne Pathogens to Avoid

LISTERIA

What it is:

A harmful bacterium that can grow at refrigerator temperatures where most other foodborne bacteria do not. It causes an illness called listeriosis.

Where it might be found:

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.

How to prevent illness:

- Follow the 4 Simple Steps: Clean, Separate, Cook, and Chill.
- Do not eat hot dogs, deli meats, and luncheon meats — unless they're reheated until steaming hot.
- Do not eat soft cheese, such as feta, brie, camembert, "blue-veined cheeses," "queso blanco," "queso fresco," and panela — unless they're labeled as made with pasteurized milk. Check the label.
- Do not eat refrigerated pâtés or meat spreads.
- Do not eat 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.)
- Do not drink raw (unpasteurized) milk or eat foods that contain unpasteurized milk.

TOXOPLASMA

What it is:

A harmful parasite that causes an illness called toxoplasmosis. It can be difficult to detect.

Where it might be found:

Raw and undercooked meat; unwashed fruits and vegetables; soil; dirty cat-litter boxes; and outdoor places where cat feces can be found.

How to prevent illness:

- Follow the 4 Simple Steps: Clean, Separate, Cook, and Chill.
- Have someone else change the litter box. If you have to clean it, wash your hands with soap and warm water afterwards. Consider wearing disposable gloves.
- 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 for the proper temperatures.

Dietary Advice

FOLIC ACID

What it is:

B vitamin that helps prevent birth defects.

Best Sources:

Leafy, dark green vegetables, legumes (dried beans and peas), citrus fruits and juices, most berries, whole grains, breakfast cereals, fortified corn masa

How to optimize health:

- Eat folate-rich foods every day. Since B vitamins are water soluble, whatever is not used is lost in urine each day.
- Women who are or who may become pregnant should consume 400 to 800 micrograms of folic acid daily.

FISH

What it is:

Good source of high-quality protein and nutrients that can help growth and development

Best Sources:

Fish from the "Best Choices" list, which includes 7 of the most commonly eaten fish [catfish, cod, pollock, salmon, shrimp, tilapia, and tuna (canned, light)]

How to optimize health:

- Eat 2 to 3 servings each week of a variety of fish from the "Best Choices" list OR 1 serving from the "Good Choices" list at www.fda.gov/fishadvice
- Don't eat king mackerel, marlin, orange roughy, shark, swordfish, tilefish from the Gulf of Mexico, and tuna (bigeye). These fish can contain high levels of methylmercury.
- If you eat fish caught by family or friends, check for fish advisories. If there is no advisory, eat only 1 serving and no other fish that week.

GRAINS

What it is:

A major staple of the global diet

Best Sources:

Wheat, Oats, Barley, Rice

How to optimize health:

- Eat a variety of grains, including wheat, oats, and barley.
- Choose whole grains for at least half of your grains to get more nutrients.

For more information

- Talk with your doctor or healthcare provider if you have questions about foodborne illness or your personal diet.
- 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

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 14 - 15 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 page 5 of this Guide.
 - **"Key Tips for Moms-to-Be"** Summary
You can also copy the same fact sheet from page 12 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.

- **Videos:**
 - **"General Food Safety"**
 - **"Listeria"**
 - **"Toxoplasma"**

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:

- Computer with PowerPoint® presentation and LCD projector or overhead projector
- Projector screen or light-colored blank wall
- Internet access to show the online videos
- Photocopies of handouts for each participant:
 - "Food Safety At-A-Glance" fact sheet
 - "Key Tips for Moms-to-Be" Summary
 - "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 VIDEOS

Timing: Approx. 15 minutes

DISTRIBUTE HANDOUTS AND REVIEW

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 the 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 can cross 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 2 Foodborne Risks

- *Listeria monocytogenes*
- *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 **1/6** 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

Toxoplasma gondii

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

22. Impact of *Toxoplasma gondii*

- About **85%** pregnant women in U.S. at risk
- Each year in U.S.
 - Infects **300** to **4,000** fetuses
 - **50%** of Toxoplasmosis cases are acquired from food
- Infected babies can suffer hearing loss, intellectual disability, and blindness

23. 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

24. 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

25. Folic Acid

- **Important before and during pregnancy**

• **Best sources:**

Leafy, dark green vegetables, legumes (dried beans and peas), citrus fruits and juices, most berries, whole grains breakfast cereals, fortified corn masa

26. Eating Fish

- Eat 2 to 3 servings of fish a week from the "Best Choices" list OR 1 serving a week from the "Good Choices" list.
- Eat a variety of fish.
- If you eat fish caught by family or friends, check for fish advisories. If there is no advisory, eat only 1 serving and no other fish that week.
- Avoid king mackerel, marlin, orange roughy, shark, swordfish, tilefish from the Gulf of Mexico, and tuna (bigeye).
- See www.fda.gov/fishadvice for more information.

27. Grains

- Eat a variety of grains, including wheat, oats, barley.
- Choose whole grains for at least half of your grains, to get more nutrients.

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 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**



Food and Drug Administration

Center for Food Safety and Applied Nutrition
College Park, MD

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