



HEALTHY BABY, HEALTHY ME

A FOOD SAFETY CURRICULUM
FOR PREGNANT WOMEN



Sponsored by research teams at
Colorado State University Extension and
Ohio State University Extension



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This material was based on work was supported by the National Integrated Food Safety Initiative,
 U.S. Department of Agriculture Cooperative State Research, Education and Extension Service, project 2006-51110-03663

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Welcome to Healthy Baby, Health Me

Imagine you are pregnant. You are ecstatically happy and hopeful for the future. The new nursery is ready and the doctor tells you that all is well and on track for a healthy baby in a few more months.

Then, imagine your pregnancy comes to a tragic and abrupt end. In your grief you begin to wonder — what went wrong?

How can you lose your baby, your hope, and your happiness at your approaching parenthood to what? Foodborne illness? How can that happen? Listeriosis? What is that — I've never heard of it!

This is a true story. It really happened to Pam Steele. When she read in her local newspaper that we were beginning a new research study on listeriosis and pregnancy she called our office and volunteered to be a participant. She wanted her story to be known to help other women. In 1994, Pam lost her first child — a little girl. Then, when she tried to become pregnant again, she could not. It was not until many medical procedures later that her next pregnancy produced a fine, healthy son. An article with more details is found in the appendix.

You can help another women prevent a repeat of this story — in fact, you can help many other women. With Healthy Baby, Healthy Me to guide your food safety education program, you can teach women how to make choices with their food that will help protect the health of their baby, as well as their own health and the health of other family members.

Everything you need to know to teach this curriculum is included in this package. For planning, this Teacher's Guide tells you what you need and how to set up the lessons. For teaching, there are lesson plans, handouts, and slides for either projection or that can be made into table top flip charts. For program evaluation, there is a tested instrument to measure learning changes after completion of the four lessons. Finally, there is a Certificate for Completion for you to customize for each of your program participants.

So — time to get started! Enjoy!

Implementing the Program

Healthy Baby, Healthy Me is designed as a four-lesson curriculum to teach food safety to pregnant women. Here are some tips to consider when you are planning your program.

- You can teach one woman or you can teach a group of women.
- You can successfully teach in a variety of environments — from the local library, at a school, or in your participant’s home. We have considered the various settings that you might use when we developed the teaching materials.
- If you have access to electronic media, you can project the slide sets for a room full of participants. Another option is to download the lesson’s PowerPoint™ and burn it to a DVD to be used in a DVD player for one or more participants to view. NOTE: You will need Adobe Acrobat Reader software to show the slide presentations (PDF files). To download this software, go to: <http://get.adobe.com/reader/> and follow the instructions.
- If the equipment is not available where you are teaching, the slides can be printed, laminated, and assembled into table-top flip charts or handouts for each participant to take home.
- You can plan for hands-on demonstrations and activities using the activities that are included in each lesson.
- If that is not feasible to have hands-on demonstrations for your teaching setting, each lesson is illustrated with photographs that realistically depict the educational concepts being taught.
- Optional teaching kits can be assembled using the activity materials listed in the Teacher’s Guide.
- If you have a budget to support your teaching, ideas for optional participant incentives are included as take-home reminders of lesson concepts.

When Healthy Baby, Healthy Me was developed and tested as a food safety curriculum, we conducted an educational intervention in cooperation with the Expanded Food and Nutrition Education Programs of Ohio and Colorado. The curriculum used as the comparison group in the intervention was Eating Smart • Being Active, a curriculum developed by Colorado State University and University of California at Davis Extension faculty. The experimental group used an enhanced version of the Eating Smart • Being Active curriculum that included these four lessons of dedicated food safety education. Over 500 pregnant women in Ohio and Colorado participated in the educational intervention. The Healthy Baby, Healthy Me curriculum is the product of that successful intervention.

Whatever your present curriculum, wherever you teach, whatever your budget, Healthy Baby, Healthy Me can be layered over your present program or it can stand alone. You have the choice on how you implement. We have given you the capacity to teach vital information that will protect the health of baby and mom. Enjoy teaching!

Lesson 1: Have a Safe Pregnancy Focus on *Listeria*

Before the lesson:

- 1) Print off **Program Survey** in English or Spanish to have participants complete before starting Lesson 1. Add any desired demographic questions to the questionnaire.
- 2) Acquire the needed handouts for this lesson:
 - **HO 1.1 Pregnancy and Foodborne Illness booklet.** Available in English and Spanish. Order copies from Colorado State University Extension (see order form in appendix) or download copies to print off at www.foodsafety.osu.edu.
 - **HO 1.2 Maribel's Story.** (Fotonovela from FDA's Educator's guide on Preventing *Listeriosis* in Pregnant Hispanic Women in the U.S.)
 - Available in English at: <http://tinyurl.com/3de7k28>
 - Available in Spanish at: <http://tinyurl.com/3cahnzg>
 - **HO 1.3 Food Safety for Baby and Me, Instead of... Choose flyer.** Available in English or Spanish. Download copies to print off at: www.foodsafety.osu.edu.
 - (Optional) **Protect your Baby and Yourself from Listeriosis (USDA-FSIS).** Available at the following links:
 - English: <http://tinyurl.com/3jbkovn>
 - Spanish: <http://tinyurl.com/3o3zt3j>
- 3) Organize the visual teaching method you will be using (Projected PowerPoint™ slides or printed pages made into a flip chart).
- 4) If using, obtain the optional participant incentive item: **refrigerator thermometer.**
- 5) Prepare for participant activities:
 - **SAFE OR NOT SAFE?** (Pages 11-12 of Lesson Plan)

For this activity, use the cheese product labels shown on slides 14-18. You may also want to collect labels of cheese products made with raw (unpasteurized) and pasteurized milk. Key points to address with the cheese product slides are found on pages 9-10 in this Teacher's Guide.
 - **WHERE TO PLACE A REFRIGERATOR THERMOMETER:** (Page 14 of Lesson Plan)

For this activity you'll need a refrigerator thermometer and refrigerator to demonstrate to the group; OR discuss using slide 29. You may also download the optional video on where to place the refrigerator thermometer at www.foodsafety.osu.edu.
 - **READING "USE BY" AND "SELL BY" DATES ON LABELS:** (Page 15 of Lesson Plan)

For this activity, collect labels of refrigerated, ready-to-eat foods like lunch meats, hot dogs, milk products, cheese products, salads, etc. Have participants read the dates and terms such as "best if used by," etc. on the various product labels. OR, discuss what to look for on labels using slides 30 and 31.

- 6) Review lesson plan (goals, key messages, time line and teaching points).
- 7) Review the evaluation questions covered in this lesson (see content analysis matrix on pages 39-40 of this Teacher's Guide).
- 8) Read the FOR YOUR INFORMATION to become familiar with the background information important for teaching the lesson and answering questions.

FOR YOUR INFORMATION – LESSON 1:

This information is for you, the educator, and is not to be copied and given to participants. It gives you information to help you understand the research behind the lesson and feel more confident teaching. Knowing this information will help you answer participants' questions.

Why are women at higher risk for foodborne illness during pregnancy?

Pregnant women are at increased risk for getting some foodborne infections because of the hormonal changes that occur during pregnancy. One of these is the increased production of progesterone, which leads to a down-regulation of cell-mediated immune functions. This down-regulation causes the pregnant woman to become "immune suppressed." Such changes are necessary for the survival of the fetus, but also increase the chance for infection from certain foodborne pathogens, including *Listeria monocytogenes* (the topic of this lesson) and *Toxoplasma gondii* (the topic of lesson two). These pathogens can infect not only the pregnant woman, but can pass through the placenta to the unborn child, causing possible abortion, miscarriage, stillbirth or a baby born with health issues. These lessons focus on how to enjoy a safe and healthy pregnancy while avoiding dangerous foodborne pathogens.

Other groups of people who are at increased risk for foodborne illness include infants, the elderly, persons with HIV/AIDS and persons on immune suppressing drugs due to cancer or other treatments.

A downloadable 4-page fact sheet ***Food Safety during Pregnancy*** can be found at: <http://www.ext.colostate.edu/pubs/foodnut/09372.html>.

What is *Listeria monocytogenes*? (lĭ-sĭr'ē-ă mon-oh-sigh-tahj'-en-eez)

Listeria monocytogenes is widely distributed in nature and can be found in the soil, on plants and decaying vegetation, and in animals and people. *L. monocytogenes* has the ability to survive unfavorable conditions, including refrigeration temperatures, food preservatives (salt), and conditions with little or no oxygen. It is, however, easily destroyed by cooking.

Infection from *L. monocytogenes* typically occurs in individuals with a weakened or suppressed immune system, including pregnant women. According to the Centers for Disease Control and Prevention (CDC), pregnant women are about 20 times more likely than other healthy adults to develop listeriosis (***lĭ-sĭr'ē-ō'sĭs***), the disease caused by *Listeria*. In fact, nearly one in six cases of listeriosis occurs during pregnancy. Listeriosis can be transmitted to the fetus through the placenta even if the mother is not showing signs of illness. Once in the bloodstream, *Listeria* bacteria can travel to any site, but seem to prefer the central nervous system and the placenta. The fetus is unusually prone to infection from *L. monocytogenes*, which can lead to a miscarriage, stillbirth, or infection of the neonate with health problems following birth.

How does *Listeria* affect the pregnant mother?

Listeriosis can be difficult to detect. Gastrointestinal symptoms may appear within 2 to 3 days of eating a contaminated food. If the body does not clear itself of the pathogen and the infection becomes invasive, symptoms such as fever, chills, headache, muscle aches and a stiff neck back may develop in 11 to 70 days after exposure. If the infection spreads to the nervous system, symptoms may include confusion, loss of balance, or convulsions. If a pregnant woman has any of these symptoms, she should contact her doctor or healthcare provider immediately. A blood test can be performed to find out if her symptoms are caused by *Listeria* infection and if so, she can be treated with antibiotics. In some cases, pregnant women who are infected with listeriosis don't feel sick. However, they can still pass the infection to their unborn babies without even knowing it. That's why *prevention* of listeriosis is very important. In any case, if a pregnant woman experiences any of the above symptoms, she should see her doctor or healthcare provider immediately.

How could *Listeria* affect the unborn baby?

During the first trimester of pregnancy, the mother is more resistant to infection with *Listeria*, but if she does become infected she could miscarry her baby. As the pregnancy progresses to third trimester, the mother is more at risk for infection with *Listeria*. Listeriosis can also lead to premature labor, the delivery of a low-birth-weight infant or infant death. Fetuses who suffer a late infection may develop a wide range of health problems, including mental retardation, paralysis, seizures, blindness, or impairments of the brain, heart, or kidney. In newborns, *Listeria* can cause blood infections and meningitis.

Is *Listeria* transmitted from the mother to the baby through breast milk?

While there is a theoretical possibility that *Listeria monocytogenes* could be transmitted via mother's milk, this has never been proven.

What is the treatment for listeriosis?

During pregnancy, antibiotics are given to treat listeriosis in the mother. In most cases, the antibiotics also prevent infection of the fetus or newborn. Antibiotics are also given to babies who are born with listeriosis.

What foods are associated with *Listeria*?

Foods associated with listeriosis are typically refrigerated, have a relatively long shelf life, are a good source of protein, and are eaten without further cooking or re-heating. Outbreaks have involved foods such as coleslaw, Mexican-style soft cheeses, milk, pâté, pork tongue, hot dogs, raw or lightly smoked fish, processed meats and deli salads. Examples of foods that may harbor this pathogen include unpasteurized milk, raw milk products, raw and smoked seafood, and any ready-to-eat processed foods, such as hot dogs, luncheon meats or deli meats that have not been heated to proper temperatures before serving.

What steps can pregnant women take to prevent listeriosis?

To avoid infection from *L. monocytogenes*, pregnant women are advised to practice safe food handling procedures, such as storing all perishable foods between 35°F and 40°F and using perishable or refrigerated ready-to-eat foods as soon as possible. If a potentially hazardous perishable food cannot be eaten within four days, it is best to freeze or discard it. Kitchen surfaces, cutting boards and utensils should be washed before and after food preparation (especially after contact with raw meat or poultry). Leftover foods should be refrigerated within two hours of preparation

and serving and used within 3-4 days. If leftovers can be eaten hot, they should be reheated to steaming hot or 165°F before serving.

Because of their higher risk for harboring *Listeria*, the USDA's Food Safety and Inspection Service (FSIS) and the U.S. Food and Drug Administration (FDA) provide the following specific advice for pregnant women and all at-risk consumers:

- Do not eat hot dogs, luncheon meats, or deli meats **unless they are reheated** until steaming hot.
- Do not eat soft cheeses made with raw (unpasteurized) milk. Examples may include feta, Brie, Camembert, blue-veined cheeses, and Mexican-style cheeses such as "queso blanco" or "queso fresco." Hard cheeses, semi-soft cheeses such as mozzarella, pasteurized processed cheese slices and spreads, cream cheese, and cottage cheese can be safely consumed.
- Do not eat refrigerated pâté or meat spreads. Canned or shelf-stable pâté and meat spreads can be eaten.
- Do not eat refrigerated smoked seafood unless it is an ingredient in a cooked dish such as a casserole. Examples of refrigerated smoked seafood include salmon, trout, whitefish, cod, tuna, and mackerel which are most often labeled as "nova-style," "lox," "kippered," "smoked," or "jerky." This fish is found in the refrigerated section or sold at deli counters of grocery stores and delicatessens. Canned fish such as salmon and tuna or shelf-stable smoked seafood may be safely eaten.
- Do not drink raw (unpasteurized) milk or eat foods that contain unpasteurized milk. Unpasteurized milk often contains harmful bacteria which can cause severe diarrhea, cramps, fever, nausea, vomiting, headache, and dehydration.

ACTIVITY: READING CHEESE LABELS (PAGE 11 OF LESSON PLAN; SLIDES 14-18)

The purpose of this activity is to help participants learn how to identify safe cheeses. You can use the five slides provided, or collect your own cheese labels and pass these out. The key words to look for on the label are "pasteurized milk." Pasteurization is a process by which raw milk is quickly heated to a high enough temperature to destroy harmful bacteria, then quickly cooled down. Milk that has not been pasteurized may be labeled as "raw milk," "unpasteurized milk," or simply "milk."

Health professionals do not recommend drinking raw milk or foods made from raw milk. This is especially risky for pregnant women. Federal law requires that milk shipped across state lines for sale at retail markets be pasteurized. If participants ask about drinking raw milk or products made with raw milk, tell them that we **strongly** recommend that they don't drink raw milk or eat foods made from raw milk anytime, and especially during pregnancy.

SLIDE 14: This is a picture of queso fresco sold in a plastic bag with no label. It has to be assumed that this soft cheese product was made with unpasteurized milk and therefore is not safe to eat during pregnancy.

SLIDE 15: This cheese label lists the following ingredients: organic cultured unpasteurized milk, salt and enzymes. By law, hard cheese made with unpasteurized milk must be aged for at least 60 days prior to being sold to minimize survival of *Listeria* and *Salmonella* in the cheese. This label doesn't say anything about how long the cheese was aged. Also, both pathogens have been found in raw milk cheese aged more 60 days. The safest choice is to avoid any cheese made with raw milk during pregnancy.

SLIDE 16: This soft cream cheese product is made with pasteurized milk. It is safe to eat during pregnancy.

SLIDE 17: This cheese is made with pasteurized milk and is therefore safe to eat during pregnancy.

SLIDE 18: This Amish Blue cheese is made milk, cultures, salt and enzymes. The word “pasteurized” is not on the label so it must be assumed that the cheese is made with raw unpasteurized milk. It does indicate that the cheese has been aged 60 days. Still, given that it is a soft cheese product made with raw milk, the safest choice is to avoid this cheese during pregnancy.

ACTIVITY: MAKING SAFE CHOICES (PAGE 12 OF LESSON PLAN; SLIDES 19-27)

SLIDE 19: Although hot dogs and luncheon meats are cooked before packaging, they can be contaminated with *Listeria* found in processing plants during slicing and packaging. They can also become contaminated during slicing at the deli counter. Because of this, pregnant women are advised to reheat hot dogs, luncheon and deli meats before eating.

SLIDE 20: If salads made in a store or made in a processing plant and shipped to a store pick up *Listeria* during preparation and handling, then undergo long refrigerated storage, the *Listeria* can grow to high enough numbers to cause illness in pregnant women and their fetuses. During pregnancy, it's best to make your meat, egg and seafood salads at home, using good hygienic practices. Any leftovers should be refrigerated for use within 3-4 days.

SLIDE 21: Refrigerated meat spreads and smoked or precooked fish and seafood selected from meat counters are likely candidates for *Listeria*. It's much safer to choose meats and seafood sold in cans or pouches as they received their final heating step after placement in the can or pouch.

SLIDE 22: As discussed earlier in the lesson, raw milk is a likely source of *Listeria* and soft cheeses made with raw milk do not receive sufficient heat treatment to destroy the *Listeria*, if present.

SLIDE 23: Raw (unpasteurized milk) is a likely source of a variety of bacteria, including *Listeria*. Pasteurized milk has been heated sufficiently to destroy *Listeria* and other harmful pathogens.

SLIDE 24: Like milk, unpasteurized juices do not receive any heat treatment. Frozen concentrate, canned and refrigerated juices labeled as “pasteurized” have received a heat treatment and are therefore safer for pregnant women.

SLIDE 25: Raw sprouts may become contaminated with *Listeria*, but are more likely to be contaminated with *Salmonella* or *E. coli* O157:H7. Cooking will destroy any pathogens that may be present. Fresh, well cleaned vegetables also should be safe to eat.

SLIDE 26: Raw eggs are a potential source of *Salmonella*. We will talk more about this pathogen in Lesson 3. Cooking eggs until both the white and yolk are firm will destroy any *Salmonella* that may be present inside the egg.

SLIDE 27: Raw meats, poultry and seafood are likely sources of a number of pathogens, including *Listeria*, *Toxoplasma gondii*, *Salmonella*, *Campylobacter* and *E. coli*. Adequate cooking destroys any pathogens that may be on these foods.

Chill Facts

Refrigeration slows the growth of yeasts, molds and bacteria, but does not kill these organisms or fully stop their growth. And, *Listeria monocytogenes* does continue to slowly grow at refrigerator temperatures. The colder the temperature of the refrigerator, the slower the growth.

Refrigerators should be set to maintain a temperature between 35°F and 40°F. For safety, it is important to verify the temperature of the refrigerator. A refrigerator thermometer should be kept in the refrigerator in a place where it can easily be seen to help monitor the temperature of the refrigerator. This can be critical in the event of a power outage. When the power goes back on, if the refrigerator is still 40°F, the food is safe. Foods held at temperatures above 40°F for more than 2 hours should not be consumed.

Hot foods can be placed directly in the refrigerator in small batches. Large pots of food like soup or stew should be rapidly chilled in an ice or cold water bath before refrigerating, or divided into small portions and put in shallow containers before placing in the refrigerator. A large cut of meat or whole poultry should be divided into smaller pieces and wrapped separately or placed in shallow containers before refrigerating. Cover foods to retain moisture and prevent them from picking up odors from other foods.

For safety's sake, store raw meat, poultry, and seafood in sealed containers below foods that will be served without further cooking. This will help prevent raw juices from contaminating other foods. Avoid overstuffing the refrigerator. It is important that air be able to circulate around and between foods to maintain an even temperature.

“Use Quickly” Tips:

It's important to use refrigerated, ready-to-eat foods as soon as possible. The following labels can be found on packaged foods:

- **“Sell-By”** dates tell the store how long to display the product for sale. You should buy the product before the date expires.
- **“Best if Used By (or Before)”** dates indicate when the product should be consumed for best flavor or quality. It is not a purchase or safety date.
- **“Use-By”** dates are the last date recommended for the use of the product while at peak quality. The date has been determined by the manufacturer of the product.
- **“Closed or Coded Dates”** are packing numbers for use by the manufacturer.

If product has a “use-by” date, it's best to use the product by that date. If product has a “sell-by” date or no date, cook or freeze the product by the times on the following chart:

REFRIGERATOR STORAGE OF FRESH OR UNCOOKED PRODUCTS	
Product	Storage Times After Purchase
Poultry	1 or 2 days
Beef, Veal, Pork and Lamb	3 to 5 days

continued on next page

continued from previous page

REFRIGERATOR STORAGE OF FRESH OR UNCOOKED PRODUCTS	
Product	Storage Times After Purchase
Ground Meat and Ground Poultry	1 or 2 days
Fresh Variety Meats (Liver, Tongue, Brain, Kidneys, Heart, Chitterlings)	1 or 2 days
Cured Ham, Cook-Before-Eating	5 to 7 days
Sausage from Pork, Beef or Turkey, Uncooked	1 or 2 days
Eggs	3 to 5 weeks

REFRIGERATOR STORAGE OF PROCESSED PRODUCTS SEALED AT PLANT		
Processed Product	Unopened, After Purchase	After Opening
Cooked Poultry	3 to 4 days	3 to 4 days
Cooked Sausage	3 to 4 days	3 to 4 days
Sausage, Hard/Dry, shelf-stable	6 weeks/pantry	3 weeks
Corned Beef, uncooked, in pouch with pickling juices	5 to 7 days	3 to 4 days
Vacuum-packed Dinners, Commercial Brand with USDA seal	2 weeks	3 to 4 days
Bacon	2 weeks	7 days
Hot dogs	2 weeks	3 to 4 days
Luncheon meat	2 weeks	3 to 4 days
Ham, fully cooked	7 days	slices, 3 days; whole, 7 days
Ham, canned, labeled "keep refrigerated"	9 months	3 to 4 days
Ham, canned, shelf stable	2 years/pantry	3 to 4 days
Canned Meat and Poultry, shelf stable	2 to 5 years/pantry	3 to 4 days

Slightly adapted from: <http://tinyurl.com/2545eqk>.

Keeping the Refrigerator Clean

One very important step in keeping your food safe is keeping your refrigerator clean. Wipe up spills immediately. Clean surfaces thoroughly with hot, soapy water, then rinse with a clean wet cloth or paper towel. Once a week, make it a habit to throw out perishable foods that should no longer be eaten. See the chart on the previous page for storage times.

To keep the refrigerator smelling fresh and help eliminate odors, place an opened box of baking soda on a shelf. Avoid using solvent cleaning agents, abrasives, and all cleansers that may impart taste to food or ice cubes, or cause damage to the interior finish of your refrigerator. Follow the manufacturer's instructions.

The exterior may be cleaned with a soft cloth and mild liquid dishwashing detergent as well as cleansers and polishes that are made for appliance use. The front grill should be kept free of dust and lint to permit free air flow to the condenser. Several times a year the condenser coil should be cleaned with a brush or vacuum cleaner to remove dirt, lint, or other accumulations. This will ensure efficiency and top performance.

Removing Odors

If food has spoiled in a refrigerator — such as during a power outage — and odors from the food remain, they can be difficult to remove. The following procedures may help remove odors and may need to be repeated.

- Wipe inside of unit with equal parts vinegar and water. Vinegar provides acid which destroys mildew.
- Wash inside of unit with a solution of baking soda and water. Be sure to scrub the gaskets, shelves, sides, and door. Allow to air out several days.
- Stuff unit with rolled newspapers. Close the door and leave for several days. Remove paper and clean with vinegar and water.
- Sprinkle fresh coffee grounds or baking soda loosely in the bottom of the unit, or place them in an open container.

Lesson 1 References

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Lesson 2: Cleaning Your Hands and the Kitchen – Focus on Toxo

Before the lesson:

- 1) Obtain needed handouts:
 - **HO 1.1 *Pregnancy and Foodborne Illness* booklet.** Available in English and Spanish. Order copies from Colorado State University Extension (see order form in appendix) or download copies to print off at www.foodsafety.osu.edu.
 - **HO 2.1. *Clean and Sanitize Your Kitchen*.** Available in English and Spanish. Download copies at www.foodsafety.osu.edu.
- 2) Organize visual teaching method you will be using (Projected slides or printed pages made into a flip chart).
- 3) If using, obtain optional participant incentive items: **nail brush, hand gel sanitizer and/or spray bottle for homemade sanitizer.**
- 4) Prepare for participant activities:
 - **HANDWASHING ACTIVITIES**
Materials needed:
 - GloGerm™ kit (Germ-simulating powder or gel and a black or portable UV light). Available for purchase at: <http://www.glogerm.com/> or www.germjuice.com
 - Handwashing sink with liquid hand soap
 - Watch or clock with a second hand or a stop watch
 - Nail brush
 - Paper towels
 - Hand gel sanitizer

See page 12 of Lesson Plan for step-by-step instructions for this activity.
 - **MAKE YOUR OWN SANITIZING SOLUTION** (Slides 23-34)
Materials Needed:
 - Clean 16 oz. spray bottle for holding sanitizer solution
 - Permanent marker (for labeling bottle)
 - Measuring cup and ½ teaspoon measuring spoon
 - Funnel
 - Small bottle of 6% sodium hypochlorite unscented bleach
 - 2 cups water

See page 17 of Lesson Plan for step-by-step instructions for this activity.
- 5) Review lesson plan (goals, key messages, time line and teaching points).
- 6) Review the evaluation questions covered in this lesson (see content analysis matrix on pages 39-40 of this Teacher’s Guide).

- 7) Read the FOR YOUR INFORMATION to become familiar with the background information important for teaching the lesson and answering questions.

FOR YOUR INFORMATION – LESSON 2:

This information is for you, the educator, and is not to be copied and given to participants.

It gives you information to help you understand the research behind the lesson and feel more confident teaching. Knowing this information will help you answer participants' questions.

What is *Toxoplasma gondii*? (the actual full name of the parasite that we are calling Toxo in the lesson)

It's a parasite found in raw and undercooked meat, unwashed fruits and vegetables, water, dust, soil, dirty cat litter boxes, and outdoor places where cat feces can be found. Cats are the major carrier of Toxo and will excrete the Toxo parasite into the environment. Toxo is able to survive outside of a host and in the environment for several months. Household disinfectants and drying will not kill the parasite. Cooking to an internal temperature of 160°F (71°C), will destroy any parasites that might be present. Because Toxo is found in raw and undercooked meat, it's important to avoid tasting meat during the cooking procedure. Freezing food at 10°F (-12°C) for at least four days will also destroy the Toxo parasite.

Why is Toxo a concern during pregnancy?

If a woman is first exposed to Toxo during or shortly before pregnancy, she has a 20 to 50% chance of passing it on to her unborn baby. It is estimated that 85% of pregnant women in the U.S. have not previously been exposed to Toxo, and therefore need to avoid becoming exposed to the parasite during pregnancy. The other 15% have previously been exposed to Toxo and have developed immunity against the parasite.

How can Toxo affect the baby?

If a pregnant woman is infected with Toxo early in pregnancy, the risk of passing it to one's unborn child is very low, but if this happens there is a high risk of miscarriage. If the infection occurs later in pregnancy, the woman may not miscarry but the baby could be affected. Babies born infected with Toxo may have problems with vision, hearing or could have delayed mental development. Some children may appear normal at birth, but develop brain or eye problems years later. ***Early diagnosis and treatment of children infected with Toxo is very important to minimize Toxo's negative effects.***

Quick Facts for the Instructor:

- It's estimated that toxoplasmosis ***infects between 400 and 4,000 fetuses*** in the U.S. each year.
- Some experts estimate that *Toxoplasma* ***kills as many as 80 infants*** in the U.S. each year.

Case Report of Toxoplasmosis during Pregnancy:

Below is a summary of a case report by Falavigna and colleagues (2007) about a young woman who contracted Toxo while living in Brazil.

A young woman pregnant with twins appeared to have a normal pregnancy with regular prenatal care starting at 6 weeks of gestation until she delivered early at 31 weeks of gestation. The woman had undergone diagnostic testing early on, including a test for toxoplasmosis. Upon birth, both twins

appeared to be in good health, but remained hospitalized for seven days in a neonatal ICU incubator due to premature delivery.

During the twins' infancy, the mother observed that one twin always appeared more lethargic than the other and that at 20 days his eyelid did not open correctly. An eye test with an ophthalmologist revealed a whitish lesion in the right eye, typical of inflammation of the retina. A follow-up blood test confirmed the presence of *Toxoplasma gondii* and the infant was diagnosed with congenital toxoplasmosis. Other symptoms included lethargy, sweating while nursing, narrow eyes and droopy lids, delayed development, and microcephaly, or smallness of the head.

The "normal" twin showed appropriate development for his age, and was attentive to verbal stimuli, active, and had good muscle tone and reflexes. Although he showed no symptoms of toxoplasmosis, both twins underwent the same antimicrobial treatment for 15 months. However, at the age of seven years, it was discovered during a routine eye test at school that the supposed "normal" child had impaired vision in his left eye and visual cloudiness. An ophthalmologic examination revealed a lesion in the left eye and inflammation of the retina.

The fact that the twins showed very different symptoms has been noted in other studies. Inflammation of the retina is the most frequent long-term consequence of congenital toxoplasmosis and the risk of new lesions continues for many years. The reported case reinforces the necessity for early diagnosis, and effective follow-up of pregnant women and their children from birth to adolescence, in order to reduce the hazard and damage of congenital toxoplasmosis.

Which is more effective: regular or antimicrobial soaps?

Plain soap and water is adequate for most consumer uses and is effective at removing Toxo from hands and food preparation surfaces. Antimicrobial soaps contain an antiseptic agent to help lower the number of microbial flora. Triclosan is the most commonly used chemical ingredient in antimicrobial soaps. A key factor in its effectiveness is that it must be left on the skin long enough to work, as in a good 30-45 second scrub. Because most consumers do not take this much time when washing their hands, plain soap and water work just as well. The main key is to add soap to hands and scrub for 20 seconds using a nail brush to get under dirty nails, rinse with clean, running water and dry completely with a clean cloth or paper towel.

How do hand sanitizers work?

The majority of hand sanitizers contain ethanol or isopropanol, or a combination of these two products. Most brands also contain a moisturizer to minimize irritation to the skin. Alcohol works immediately and effectively to kill bacteria and most viruses. Solutions containing 60-95% alcohol are most effective. Alcohol gels work by stripping away the outer layer of oil on the skin, thereby destroying any microorganisms present on the surface of the hands. After use, re-growth of bacteria on the skin tends to occur slowly, thereby effectively keeping "residual" micro-flora that reside in deeper layers of skin from coming to the surface. To be most effective, a dime-size dollop of alcohol gel should be rubbed into the hands for 30 seconds. Because dirt, food or anything else on hands can make the alcohol less effective, it is important to first wash hands with soap and water. Hand sanitizers should primarily be used as an optional follow-up to traditional hand washing with soap and water, except in situations where soap and water are not available. In those instances, use of an alcohol gel is better than nothing at all.

Why sanitize kitchen surfaces?

While washing kitchen surfaces will adequately remove any Toxo parasites that may be present on the surface, it may not adequately destroy pathogenic bacteria (*Listeria*, *Salmonella*, and *Campy*)

discussed in these lessons. Because of this, the importance of sanitizing household surfaces is covered in this lesson.

- **Cleaning** removes visible dirt, leftover food particles, and other grime from the surface.
- **Sanitizing** destroys bacteria you cannot see, even if the surface looks clean. By definition, a sanitizer removes 99.9% of microorganisms present on a surface.

In a recent study conducted at by Yang and colleagues at Colorado State University, various household products were tested for their effectiveness in eliminating microorganisms on surfaces. Many of the pathogens that cause foodborne illness protect themselves in biofilms — mucus secreted by the pathogen that is difficult to dissolve with hot water and soap alone. This research showed that using a household sanitizer was the essential element for effectively destroying pathogenic microorganisms.

Household bleach (6% sodium hypochlorite) works by attacking proteins in the bacteria, causing them to clump together much like an egg that has been boiled; eventually killing the cells. Too little bleach will not effectively kill bacteria. Too much bleach can be toxic. A household bleach solution containing ½ teaspoon bleach and 2 cups water was found to effectively minimize the risk of foodborne illness caused by the microorganisms *Listeria monocytogenes*, *E. coli*, and *Salmonella*.

White vinegar (acetic acid) is also an effective sanitizer, deodorizer, and cleaner which cuts grease, soap scum, or mineral build up. The low pH of the vinegar kills bacterial cells that have a neutral pH. In the Yang study, warm vinegar was effective against *Salmonella*, *E. coli*, and *Listeria monocytogenes*. See Yang, et al. (2009) in reference list for additional information.

For information on making household sanitizers using chlorine bleach, hydrogen peroxide or white vinegar, view this YouTube video produced by the Ohio State University Extension. Go to:

<http://tinyurl.com/3fadh27>.

What about Green Sanitizers?

“Green” is a term commonly used to indicate that a product is “safe” for the environment. Over the past 10 years there has been an increase in the number of cleaning products labeled “environmentally friendly”, “eco-safe”, and “environmentally safe.” These terms suggest that the product will not cause harm to the environment; however, there is no standard or regulation for when or how these statements can be used. The U.S. Environmental Protection Agency (EPA) has begun a voluntary review program to which companies can submit their products for testing. The EPA assesses the toxicity of the chemicals in the formula and how quickly they degrade in the environment. Those products that meet their standards are allowed to use EPA’s Design for the Environment (DfE) logo. More information on the program can be found at: <http://www.epa.gov/dfe/index.htm>.



Note: In the United States, common substitutes for harsh chemical cleaners include vinegar, Borax (sodium borate), ammonia, hydrogen peroxide, and baking soda. Although cleaners such as Borax and ammonia are ideal for a ‘green’ environment, they are not safe to use in contact with food surfaces in the home. While baking soda may be used as an initial cleaning agent in the kitchen, it has no sanitizing effect. Vinegar and hydrogen peroxide are not on the DfE website, but do meet DfE criteria. While chlorine bleach, vinegar, and hydrogen peroxide may not be environmentally friendly during production or in concentrated form, the dilutions recommended in the fact sheet, **Cleaning and Sanitizing in the Home using Inexpensive Household Cleaners**, are safe for the environment. The fact sheet is available at: www.foodsafety.osu.edu.

Lesson 2 References

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8. Yang, H., P.A. Kendall, L.C. Medeiros, and J.N. Sofos. 2009. Efficacy of sanitizing agents against *Listeria monocytogenes* biofilms on high-density polyethylene cutting board surfaces. *J. Food Prot.* 72(5):990–998.

Lesson 3: Choosing Safe Fruits and Vegetables – Focus on *Salmonella*

Before the lesson:

- 1) Obtain the needed handouts:
 - **HO 1.1 *Pregnancy and Foodborne Illness* booklet.** Available in English and Spanish. Order copies from Colorado State University Extension (see order form in appendix) or download copies to print off at www.foodsafety.osu.edu.
 - **HO 3.1 *Six Steps to Safer Fruits and Vegetables*.** Available in English and Spanish. Download copies to print off at: www.foodsafety.osu.edu.
 - **Veggies and Creamy Dip recipe.** Print off page 27 of this Teacher’s Guide.
- 2) Organize visual teaching method you will be using (Projected slides or printed pages made into a flip chart).
- 3) If using, acquire the optional participant incentive item: **produce brush or cutting board.**
- 4) Prepare for Participant activities:
 - **CHOOSING SAFE FOODS** (Page 11 of Lesson Plan)

For this activity, print off slides 19-33 to distribute to participants, or simply discuss the safeness of each food as you project it on the screen. You may also want to collect some of your own pictures of safe and potentially unsafe fruits and vegetables. Key points of discussion for the slides are found on pages 25-26 in this Teacher’s Guide.
 - **CLEANING AND PREPARING RAW VEGETABLES AND CREAMY DIP:** (Page 13 of Lesson Plan)

Materials needed: (amounts will vary with number of participants)

 - Fresh in-season vegetables (carrots, celery, radishes, turnips, mushrooms, etc.)
 - Ingredients for Creamy Dip (makes one cup of dip; increase size as needed)
 - 1 cup plain yogurt or creamed cottage cheese
 - ¼ teaspoon garlic powder or garlic salt
 - 1 tablespoon dried minced onion (may substitute finely chopped onion)
 - 1 tablespoon dried parsley flakes
 - Dash of salt and pepper as desired
 - Vegetable brush, small straight edged knife, vegetable peeler
 - Paper towels
 - Clean cutting board
 - Small bowl to mix dip ingredients
 - Small whisk or mixing spoon to blend dip ingredients
 - Sink with running water
 - Napkins, spoons, toothpicks and paper plates for serving
 - Copies of the recipe for each person

- 5) Review Lesson Plan (goals, key messages, time line and teaching points).
- 6) Review the evaluation questions covered in this lesson (see content analysis matrix on pages 39-40 of this Teacher's Guide).
- 7) Read the FOR YOUR INFORMATION to become familiar with the background information important for teaching the lesson and answering questions.

FOR YOUR INFORMATION – LESSON 3

This information is for you, the educator, and is not to be copied and given to participants.

It gives you information to help you understand the research behind the lesson and feel more confident teaching. Knowing this information will help you answer participants' questions.

What is *Salmonella*? (Säl-mō-něl-lă)

The *Salmonella* germ is actually a group of microscopic bacteria that can cause flu-like illness in humans. The illness is called salmonellosis (säl-mō-něl-lō-sīs). There are many different kinds of *Salmonella* bacteria. *Salmonella* Typhimurium (Ti-fē-mūr-ē-ŭm) and *Salmonella* Enteritidis (ĕn-tĕr-rīt-ī-dīs) (SE) are the most common forms of *Salmonella* in the United States. They are often found in the guts of chickens and can be passed from the chicken to the inside and outside of the egg during laying.

How do people catch *Salmonella*?

Salmonella bacteria live in the guts of animals, including birds and humans. They are usually passed to humans by eating foods contaminated with animal feces. They may also be passed by infected food workers who forget to wash their hands with soap after using the bathroom.

Contaminated foods usually look, taste, and smell normal. While contaminated foods are often of animal origin (e.g., beef, poultry, milk, or eggs), nearly all foods, including vegetables and fruits may become contaminated. *Salmonella* bacteria are easily killed by cooking. Washing fruits and vegetables will remove most of the bacteria, but not if the bacteria gets into the seed. This sometimes happens with sprouts.

Salmonella may also be found in the guts and feces of some pets, especially those with diarrhea. People can become infected if they do not wash their hands after contact with pets. Snakes and other reptiles are particularly likely to carry *Salmonella* bacteria and people should always wash their hands immediately after handling a reptile, even one that is healthy. Adults should also be careful that children wash their hands after handling reptiles or petting zoo animals.

What is my risk of getting infected with *Salmonella* bacteria?

Pregnant women aren't at higher risk than other adults for becoming ill with *Salmonella*. However, *Salmonella* Typhi, one of the many types of *Salmonella* bacteria, may be passed to the fetus and cause abortion, stillbirth or premature labor. Also, young infants are at very high risk of becoming infected with *Salmonella*.

What will my symptoms be if I'm infected with *Salmonella* bacteria?

Most persons infected with *Salmonella* develop diarrhea, fever, and abdominal cramps within 12 to 72 hours of eating contaminated food. The illness usually lasts 4 to 7 days, and most recover without

treatment. However, sometimes the diarrhea becomes so severe that the person needs to be hospitalized. If the *Salmonella* infection spreads to the blood stream and other body sites, it can cause serious illness and even death if not treated promptly with antibiotics.

Why focus on this lesson on *Salmonella* and produce safety?

While the primary sources of *Salmonella* bacteria are the guts and feces of animals, fruits and vegetables can easily become contaminated with *Salmonella* in the field or through handling. And, if they are not cooked before serving, they become the carrier of *Salmonella* to humans. In recent years several large outbreaks of salmonellosis have been associated with fruit, vegetable or nut products.

What should I look for in buying fresh produce?

- Choose fresh fruits and vegetables that are not bruised or damaged.
- Because there have been several outbreaks of foodborne illness associated with bagged salad greens and pre-packaged vegetables and fruits, it is better to choose **whole** fruits and vegetables and whole heads of lettuce or greens instead of pre-cut fruits and packaged salad mixes. Make sure the whole heads of lettuce or other fresh vegetables are displayed in a cold case. **This is especially important for pregnant women and others at increased risk of food poisoning.**
- If you do purchase fresh-cut produce, such as a half watermelon or bagged mixed salad greens, choose only those items that are refrigerated or surrounded by ice.
- Bag fresh fruits and vegetables separately from meat, poultry and seafood products in your cart and when packing them to take home from the market.
- If you do buy pre-packaged fresh produce, be sure to use by the “Best if used by” or “Use by” date on the package. Once opened, use within 1-2 days. Also, even though the package says the product was pre-washed, it’s best to **re-wash just before using.**

What about Raw Sprouts?

Raw sprouts (e.g., mung bean, alfalfa, clover, radish) that are served on salads, wraps and sandwiches have been identified as a potential source of foodborne illness in the United States due to contamination with *Salmonella* or *E. coli*. Sprouts grown at home are also a risk if eaten raw. If bacteria are present in or on the seeds, they can grow to high levels during sprouting, even under clean conditions. And, rinsing sprouts before eating will not be enough to remove the bacteria if they have gotten into the seed.

To reduce your risk of illness from sprouts, the Food and Drug Administration has this advice:

- Do not eat raw sprouts such as bean, alfalfa, clover, mung or radish sprouts during pregnancy.
- Thoroughly cook all sprouts before eating. This will reduce the risk of illness.
- Check sandwiches and salads bought at restaurants and delis. They often contain raw sprouts. Ask your server to hold the sprouts, or remove them from the sandwich.

What should I look for in choosing safe juices during pregnancy?

Most juices sold in the United States are heat processed (“pasteurized”) to kill harmful bacteria. Commercial juices sold at room temperature (e.g., juice in cardboard boxes, vacuum sealed juice in

glass containers) have been pasteurized, although this may not be indicated on the label. Frozen juice concentrates also are heated sufficiently to kill pathogens.

However, some juices sold in local markets and at roadside stands do not undergo a heat treatment before packaging for sale. Because of several outbreaks of foodborne illness associated with unpasteurized juices, the FDA now requires that all unpasteurized juices and cider sold across state lines carry a warning label.

Juices of concern:

- **Packaged juices sold in refrigerated cases may or may not have been pasteurized.** Look for the word “**pasteurized**” on the label. If the juice or cider product has not been pasteurized, the FDA requires the following warning label on the container:
- 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.
- **Fresh-squeezed fruit and vegetable juices made onsite without any heat treatment and sold in containers.** When fresh-squeezed fruit and vegetable juices are left untreated, harmful bacteria from the inside or the outside of the fruit or vegetable can become part of the final product. These products are sometimes available at grocery stores, health food stores, cider mills, and farmers markets. They must be sold in refrigerated cases or on ice and must have a warning label.
 - **Juices that are fresh squeezed and sold by the glass.** These are usually sold at farmers markets, roadside stands, or in some restaurants or juice bars. They may or may not be pasteurized or otherwise treated to ensure safety. And, because they are sold by the glass, warning labels are not required for these products. Ask the server if the juice has been pasteurized or otherwise treated to make it safe.
 - If you can't tell if a juice has been processed to destroy harmful bacteria, either **don't drink it** or **bring it to a boil** to kill any harmful germs that may be present.

Storing Vegetables and Fruits:

Some vegetables and fruits which are not fully ripe when picked or purchased, can be ripened by placing them in a loosely closed paper bag at room temperature.

Once ripe, store perishable fresh fruits and vegetables (like strawberries, lettuce, herbs, and mushrooms) in a clean refrigerator at a temperature between 35°F and 40°F. If you're not sure whether an item should be refrigerated to maintain quality, ask your grocer.

Keep fresh fruits and vegetables on a shelf above and separate from raw meat, poultry or seafood in your refrigerator.

Store produce unwashed until ready to use. Wash before using.

See the chart on the following page for storage methods and times.

Vegetable or Fruit	Storage Method
Onions, potatoes, sweet potatoes	Store in a cool, dark place. Light causes potatoes to turn green under the skin. Cut the green areas off—they are toxic.
Bananas and tomatoes	Store at room temperature.
Other vegetables and fruits	Store in the lower refrigerator drawers.
Leftover cooked or cut up vegetables and fruits	Cover and store in the refrigerator; use within 3–5 days.

What do I need to know about safe preparation of fruits and vegetables?

- Begin with clean hands. Wash your hands for 20 seconds with warm water and soap before and after preparing fresh produce.
- Begin with a clean cutting board. Wash cutting boards, dishes, utensils, and counter tops with hot water and soap between the preparation of raw meat, poultry and seafood products and the preparation of produce that will not be cooked. For added protection, spray surfaces with a homemade or commercial sanitizer after cleaning as described in Lesson 2.
- It's safest to only prepare the amount of fruit or vegetables that you plan to eat in one meal or in one day. Cut away any damaged or bruised areas on fresh fruits and vegetables before preparing and/or eating. Discard any produce that looks rotten.
- Thoroughly wash all fresh fruits and vegetables under running tap water just before eating, cutting or cooking. This includes melons with rinds and fruits with tough skins. Remove outer leaves of leafy vegetables. Be aware that bacteria are sticky, so even thorough washing may not remove all germs. **Note: Labels on bleach sold in Mexico contain instructions for using a diluted bleach solution to wash vegetables and fruits. This is not necessary or recommended in the United States.**
- For firm-skinned fruits and vegetables like potatoes, rub or scrub with clean produce brush while rinsing with running tap water. Even if you plan to peel the produce before eating, it is still important to wash it first. If there are bacteria on the surface of the fruit or vegetable, the knife could transfer those bacteria to the inside during cutting.
- Pat dry fruits and vegetables with a clean cloth or paper towel. This will further help reduce germs that may be present and slow mold growth during refrigerated storage.

What else can I do to prevent salmonellosis?

- Since foods of animal origin may be contaminated with *Salmonella*, you should not eat raw or undercooked eggs, poultry, or meat. Raw eggs may be unrecognized in some foods such as homemade hollandaise sauce, Caesar and other homemade salad dressings, tiramisu, homemade ice cream, homemade mayonnaise, cookie dough, and frostings.
- Poultry and meat, including hamburgers, should be well-cooked. Also, if you are served undercooked meat, poultry or eggs in a restaurant, don't hesitate to send it back to the kitchen for further cooking.

- Don't consume raw or unpasteurized milk or other dairy products made with raw milk.
- Avoid cross-contaminating foods. Keep uncooked meats separate from raw fruits and vegetables, cooked foods, and ready-to-eat foods. Wash hands, cutting boards, counters, knives, and other utensils thoroughly after handling uncooked foods. Also wash hands before handling any food, and between handling different food items.
- If you have salmonellosis, don't prepare food or pour water for others until you are no longer carrying the *Salmonella* germ.
- Always wash your hands after contact with animal feces. Since reptiles (including turtles) are particularly likely to have *Salmonella*, they are not appropriate pets for small children and should not be in the same house as an infant.
- Mother's milk is the safest food for young infants. Breast-feeding can help prevent salmonellosis and many other health problems.

ACTIVITY: CHOOSING SAFE FRUITS AND VEGETABLES (SLIDES 19-33; PAGE 11 OF LESSON PLAN)

The purpose of this activity is to help participants learn how to choose safe fruits and vegetables. You can use the 15 slides provided, or collect your own examples of fruits and vegetables. The important points to discuss are highlighted below:

SLIDE 19: FRESH CARROTS: These are safe to eat, if carefully scrubbed and/or peeled to remove any dirt and germs in the crevices.

SLIDE 20: FRESH TOMATOES WITH STEMS ON: The crevice where the stem attaches to the tomato could harbor *Salmonella* and other bacteria. These are safe to eat if well washed and the stems cut out.

SLIDE 21: FRESH CANTALOUPE, SLICED WITH RIND ON: This cantaloupe could be a potential source of *Salmonella* bacteria if care is not taken to wash the rind before cutting. The best practice is to wash the rind, cut open the cantaloupe, scoop out the inner seeds, cut the rind off the melon, re-rinse the melon fruit, then cut up into smaller pieces as desired.

SLIDE 22: PLATE OF CARROTS, CELERY, BROCCOLI AND CHERRY TOMATOES: This plate of prepared cut up vegetables is safe if care is taken in the washing and cutting of the vegetables to avoid cross-contamination with raw meats and other sources of *Salmonella*.

SLIDE 23: WASHING LETTUCE: This is an appropriate step in ensuring a safe lettuce product.

SLIDE 24: SPINACH LEAVES FROM A PACKAGE: Pre-packaged spinach has been associated with outbreaks of foodborne illness. It's best for safety during pregnancy to purchase whole head greens and rinse well before serving in salads. If serving pre-packaged greens, do rinse well before serving in a salad.

SLIDE 25: ORGANIC TOMATOES: Just like tomatoes grown using conventional means, these tomatoes need to be well rinsed before cutting for use in a salad.

SLIDE 26: YELLOW PEPPERS: These peppers will be safe to eat if the stems are cut out and the peppers well washed before slicing for use raw.

SLIDE 27: CAULIFLOWER: As with other vegetables, cauliflower needs to be well rinsed before cutting for use in a salad.

SLIDE 28: PACKAGED BABY SPRING MIX AND ROMAINE: Whole heads of Romaine are a safer choice and generally less expensive. If using packaged lettuce products, re-wash before serving.

SLIDE 29: FRESH NECTARINES: Like other fresh fruits and vegetables, wash before cutting or eating.

SLIDE 30: BANANAS: The peel on bananas keeps the fruit inside safe to eat. Be sure to wash your hands before peeling so you don't transfer germs to the fruit under the peel.

SLIDE 31: RAW SPROUTS: Because the process of germinating and growing sprouts supports the growth of bacteria, if present, pregnant women and others at high risk for foodborne illness should avoid eating raw sprouts. Only cooked sprouts should be consumed during pregnancy.

SLIDE 32: APPLE JUICE: Because this product has been pasteurized, it is safe to drink.

SLIDE 33: COLD PRESSED APPLE CIDER: Because this product is unpasteurized, it may not be safe to drink and should be avoided during pregnancy.

Lesson 3 References

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VEGGIES WITH CREAMY DIP

Makes 6 (½ cup) servings

Preparation Time: 10 minutes

Ingredients:

- 3 cups raw in-season vegetables (e.g., carrots, celery, broccoli, cauliflower, jicama, red or green peppers, mushrooms, cucumber)

Directions:

1. Wash all vegetables with cool water. Use a produce brush to scrub the outside of the vegetables before slicing. Use a knife to remove any dirt in crevices. Peel if desired.
2. Pat vegetables dry with a clean cloth or paper towel
3. Slice or cut the vegetables into serving size portions on a clean, cutting board.
4. Arrange vegetables on a plate around a small bowl.
5. Serve with Creamy Dip (below)

CREAMY DIP

Makes: 6 (2 tablespoon) servings

Preparation Time: 10 minutes

Ingredients

- 1 cup plain yogurt (or substitute 1 cup of small curd or creamed cottage cheese)
- ¼ teaspoon garlic powder or garlic salt
- 1 tablespoon dried minced onion (may substitute finely chopped onion)
- 1 tablespoon dried parsley flakes
- Dash of salt and pepper as desired

Directions

1. In a medium sized bowl, combine yogurt (or cottage cheese), garlic powder, dried onion, dried parsley, salt and pepper. Blend with a whisk or spoon until smooth.
2. Serve immediately or chill in refrigerator until ready to serve. Serve with raw vegetables.

Nutrition Facts	
Serving Size 2 tablespoons (39g)	
Servings Per Container 12	
Amount Per Serving	
Calories 30	Calories from Fat 5
% Daily Value*	
Total Fat 0.5g	1%
Saturated Fat 0g	0%
Trans Fat 0g	
Cholesterol 5mg	2%
Sodium 125mg	5%
Total Carbohydrate 4g	1%
Dietary Fiber 0g	0%
Sugars 3g	
Protein 2g	

Lesson 4: Safe Cooking – Focus on *Campylobacter*

Before the lesson:

- 1) Obtain the needed handouts:
 - **HO 1.1 *Pregnancy and Foodborne Illness* booklet.** Available in English and Spanish. Order copies from Colorado State University Extension (see order form in appendix) or download copies to print off at www.foodsafety.osu.edu.
- 2) Organize the visual teaching method you will be using (Projected PowerPoint slides or printed pages made into a flip chart).
- 3) If using, obtain optional participant incentive items: **digital or dial bimetallic stemmed food thermometer.**
- 4) Prepare for participant activities:

Note: You will need crushed ice for two of these activities. Pack crushed ice into a cooler for transport to the classroom, or arrange to have access to a refrigerator/freezer with crushed ice.

- **HOW TO MEASURE THE INSIDE TEMPERATURE OF THIN AND THICK FOODS**

Materials needed (per instructor if demonstrating; per person if practicing):

- Dial or digital instant read food thermometer
- Circular thin piece of floral foam (to represent a hamburger patty)
- Rectangular piece of floral foam (to represent a loaf pan of meatloaf)
- Plate, spatula, fork to show proper handling of food when taking temperature
- Hand towel to place under the “meatloaf” foam.

Distribute the pieces of floral foam (hamburger and meatloaf size), thermometer, plate, spatula, fork, and hand towel. Follow the **Lesson Plan on Page 11 (Slides 16-18)** for step by step instructions on how to correctly take the temperature of thick and thin food items.

- **TAKING THE TEMPERATURE OF WATER: HOW WELL IS THE THERMOMETER WORKING?**

Materials Needed:

- 3 Styrofoam cups per participant
- 1 dial instant read food thermometer, per participant
- 1 sheet of paper with words Hot Water, Room Temperature Water and Ice Water, per participant
- Hot pot to boil water or bring thermos of very hot water
- Source of room temperature water
- Crushed ice

Follow the instructions on **page 12 of Lesson Plan (Slides 19-23)**. Prepare and distribute to participants one cup each of water at three different temperatures (very hot, room temperature and ice water). Ask participants to measure the temperature of each type of water, write it down on their paper, then compare their results with other participants.

The 3 water temperatures should measure as follows:

Very hot water: Temperature will depend if water is near boiling or not, but very hot tap water should be between 100°F-110°F (38°C-43°C)

Room temperature: Should be around 60°F-70°F (15.5°C-21°C)

Ice water: Should be below 40°F (4.4°C)

If temperatures are not as expected, begin a discussion regarding the importance of calibrating a thermometer for accuracy.

• CALIBRATING A FOOD THERMOMETER

Materials needed:

- One dial instant read food thermometer per participant, with calibration tool (built-in or calibration wrench)
- Crushed ice
- Clean cold water from tap or thermos
- 8 oz. or larger glass or container (minimum 4 inches high) per participant

Follow the **Lesson Plan on pages 13-15 (Slides 24-30)** for step by step instructions on calibrating a food thermometer.

Note: Some stem thermometers have a built-in calibration tool. For example, the metal clip attached to the protective sheath can be pressed against the notches on the base of the dial head to turn the pointer up or down as needed to reach 32°F. Always read and follow the calibration instructions provided by the manufacturer for each particular thermometer type.

- 5) Review Lesson Plan (goals, key messages, time line and teaching points).
- 6) Review the evaluation questions covered in this lesson (see content analysis matrix on pages 39-40 of this Teacher's Guide).
- 7) Read the FOR YOUR INFORMATION to become familiar with the background information important for teaching the lesson and answering questions.

FOR YOUR INFORMATION – LESSON 4

This information is for you, the educator, and is not to be copied and given to participants. It gives you information to help you understand the research behind the lesson and feel more confident teaching. Knowing this information will help you answer participants' questions.

What is *Campylobacter*?

Campylobacter jejuni (the bacteria we call Campy) are often found in the same places as *Salmonella*. Both are found in the intestinal tracts of animals and are common sources of foodborne illness. Together, they cause nearly 5 million cases of foodborne illness each year in the U.S.

Where is *Campylobacter* found in food?

Both *Salmonella* and *Campylobacter* pathogens are commonly associated with unpasteurized milk, unpasteurized milk products, and raw or undercooked meat and poultry. Both pathogens may end up in salads and other foods through cross-contamination. Cross-contamination can occur when the countertop, utensil, or cutting board is used first to prepare raw meat, then used for other foods without cleaning and sanitizing between uses.

Why is Campy of concern to pregnant woman?

While pregnant women aren't at higher risk than other adults for becoming ill with Campy, if a woman does become ill with Campy while pregnant, she could pass it on to her unborn child and that could cause miscarriage, stillbirth or premature labor.

What are the potential long term complications of a *Campylobacter* infection?

While Campy infections usually resolve without treatment, some people do end up with long term complications. Bacteremia (bacteria in the blood stream), **Gullain-Barré** syndrome (GBS) and reactive arthritis are the most serious long term complications that may occur following a bout with Campy. If a woman comes down with bacteremia during pregnancy, the fetus could become infected, leading to miscarriage or stillbirth. If infection with Campy occurs near the time of delivery, the baby could end up with bacteremia and/or meningitis (bacterial infection of the membranes covering the brain and spinal cord).

Reactive arthritis occurs in about 2% of Campy cases and may involve inflammation of joints, urinary system and/or eyes. Pregnant women with Campy-induced reactive arthritis can expect to deliver a normal infant, but may be unable to care for the newborn due to physical impairments caused by the disease. **Gullain-Barré** syndrome is rare autoimmune disease that has a strong connection to *Campylobacter* infection. About a fourth of patients with this condition have had a recent bout of Campy. A key symptom of GBS is peripheral neuropathy (degeneration of nerve fibers) and severe weakness. Persons afflicted often have recurrent attacks of GBS lasting ~4-8 weeks, with episodes worsening each time. Most alarming is that about 20% of those infected experience significant disability, often permanently. Since *Campylobacter jejuni* puts both the pregnant woman and unborn child at risk, it's important for pregnant women to take special care when selecting, preparing and handling food during pregnancy.

How can someone prevent getting an infection from *Campylobacter*?

Here are some tips to follow:

- Use only pasteurized milk, cheese and yogurt.
- Use only pasteurized fruit juices.
- Use a food thermometer to make sure meat and poultry (including ground meats) are cooked to safe end point temperatures.
- Thoroughly rinse fresh fruits and vegetables under running water before eating.

Safe Food Handling Labels for Raw Meat Products:

All raw or partially cooked (not ready-to-eat) meat and poultry packages contain **Safe Handling Instructions**. The label tells how to safely store, prepare, and handle raw meat and poultry products in the home. Follow instructions carefully.

Storing Meat:

Store fresh meat in the original wrapper in the refrigerator. Place it on a plate so that the juices can't drip onto other foods. For best results when freezing meat or poultry, wrap it in special paper or bags designed for freezer storage.

More Tips on Using a Food Thermometer

Most available food thermometers will give an accurate reading within 2°F to 4°F. The reading will only be correct, however, if the thermometer is placed in the proper location in the food. If not inserted correctly, or if the food thermometer is placed in the wrong area, the reading will not accurately reflect the internal temperature of the food. In general, the food thermometer should be placed in the thickest part of the food, away from bone, fat, or gristle.

Check the manufacturer's instructions before using your food thermometer. The instructions should tell how far the thermometer must be inserted in a food to give an accurate reading. If instructions are not available, check the stem of the food thermometer for an indentation, or "dimple." This shows one end of the location of the sensing device. Dial thermometers must penetrate about 2 to 3 inches into the food. Most digital thermometers will read the temperature in a small area of the tip.

Take care of your thermometer. As with any cooking utensil, food thermometers should be washed with hot soapy water. Most thermometers should not be immersed in water. Wash carefully by hand. Also, use caution when using a food thermometer. Some models have plastic faces, which can melt if placed too close to heat or dropped in hot liquid.

Thermometer probes are sharp and should be stored with the probe in the stem sheath. Some glass thermometers are sensitive to rough handling and should be stored in their packaging for extra protection or in a location where they will not be jostled.

Lesson 4 References

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Program Survey — English 33

Program Survey — Spanish 35

References for Program Survey 37

Program Survey



Name: _____

Date: _____

This is not a test, and there are no wrong answers. Please circle the answer that best describes your thoughts.

- | | | | | |
|---|---|-----------------------------------|------------------------------------|-----------------|
| 1. How much have you heard about the bacteria <i>Salmonella</i> ? | Nothing | A Little | A Lot | |
| 2. How much have you heard about the bacteria <i>Listeria</i> ? | Nothing | A Little | A Lot | |
| 3. How much have you heard about the parasite <i>Toxoplasma gondii</i> (Toxo)? | Nothing | A Little | A Lot | |
| 4. How much have you heard about the bacteria <i>Campylobacter</i> (Campy)? | Nothing | A Little | A Lot | |
| 5. During pregnancy, I'm at a higher risk of getting an infection caused by <i>Listeria</i> . | Agree | Disagree | Not Sure | |
| 6. During pregnancy, I'm at a higher risk of getting a foodborne illness caused by <i>Toxoplasma gondii</i> (Toxo). | Agree | Disagree | Not Sure | |
| 7. Using the same cutting board to cut up raw chicken and then cut raw vegetables for a salad is safe as long as you wipe the board off with a clean cloth between the different foods. | Agree | Disagree | Not Sure | |
| 8. If you use a dishcloth to wipe up liquid from meat or chicken, you can safely continue to use the cloth for washing dishes if you rinse the dishcloth in warm water. | Agree | Disagree | Not Sure | |
| 9. When you can't see any pink color inside a cooked hamburger patty you know all of the harmful germs have been killed and the hamburger is safe to eat. | Agree | Disagree | Not Sure | |
| 10. When purchasing lettuce, which of the following is the safest product? | Pre-cut and packaged in cold display | Whole head in cold display | Whole head on table display | Not Sure |
| 11. How should you dry your hands to be sure your washed hands stay clean? | Paper Towel | Kitchen Towel | Bath Towel | Not Sure |

More questions on the back

These questions are about what you like to eat and the ways you fix food. It is not a test, and there are no wrong answers. Please circle the answer that best describes how you usually do things.

12. How often do you wash your hands with soap and warm running water before preparing food?	Never	Rarely	Some of the time	Most of the time	Always
13. After playing with a pet and before getting a snack, how often do you wash your hands with soap and warm running water?	Never	Rarely	Some of the time	Most of the time	Always
14. After cutting raw meat, chicken, or seafood, how often do you wash in hot, soapy water all the items that touched the raw food (e.g. cutting board, knife, counter top) before you continue cooking?	Never	Rarely	Some of the time	Most of the time	Always
15. How often do you thoroughly rinse fresh vegetables under running water before eating them?	Never	Rarely	Some of the time	Most of the time	Always
16. How often do you wash your hands with soap and warm running water after working with raw meat, chicken, or seafood and before you continue cooking.	Never	Rarely	Some of the time	Most of the time	Always
17. How often do you use a thermometer to tell if hamburger patties have been cooked enough?	Never	Rarely	Some of the time	Most of the time	Always
18. How often do you use a refrigerator thermometer to check the temperature of your refrigerator?	Never	Rarely	Some of the time	Most of the time	Always
19. How often do you refrigerate leftovers like cooked rice or refried beans within two hours of preparing or serving them?	Never	Rarely	Some of the time	Most of the time	Always

Do you currently eat the following foods? Please circle YES or NO.

20. Eggs with runny yolks	YES	NO
21. Raw fish or seafood like sushi, sashimi, ceviche or raw oysters	YES	NO
22. Unbaked homemade cookie dough that contains raw eggs	YES	NO
23. Alfalfa or other raw sprouts	YES	NO
24. Cold hot dogs	YES	NO
25. Soft cheeses made from unpasteurized milk like Brie or Camembert	YES	NO
26. Homemade Mexican soft cheeses like queso fresco or queso blanco	YES	NO
27. Juices and smoothies made with raw fruits and vegetables	YES	NO
28. Cold deli or luncheon meats like sliced turkey, ham or bologna	YES	NO
29. Raw (unpasteurized) milk	YES	NO

Encuesta Previa

Nombre: _____

Fecha: _____

Esto no es una prueba, y no hay respuesta incorrecta; por lo tanto todas las respuestas son válidas. Por favor haga un círculo alrededor de la respuesta que mejor refleje sus pensamientos.

1. ¿Cuánto ha escuchado sobre la bacteria <i>Salmonella</i> ?	Nada	Un poco	Mucho	
2. ¿Cuánto ha escuchado sobre la bacteria <i>Listeria</i> ?	Nada	Un poco	Mucho	
3. ¿Cuánto ha escuchado sobre el parásito <i>Toxoplasma gondii</i> (Toxo)?	Nada	Un poco	Mucho	
4. ¿Cuánto ha escuchado sobre la bacteria <i>Campylobacter</i> (Campy)?	Nada	Un poco	Mucho	
5. Durante el embarazo, estoy en un riesgo mayor de contraer una infección causada por la bacteria <i>Listeria</i> .	Estoy de acuerdo	No estoy de acuerdo	No estoy segura	
6. Durante el embarazo, estoy en un riesgo mayor de enfermarme con alimentos contaminados por el parásito <i>Toxoplasma gondii</i> (Toxo).	Estoy de acuerdo	No estoy de acuerdo	No estoy segura	
7. Usar la misma tabla de picar para cortar pollo crudo y luego cortar verduras para una ensalada es seguro siempre y cuando la tabla se limpie con un paño limpio al terminar la preparación de un alimento y antes de comenzar a preparar el próximo.	Estoy de acuerdo	No estoy de acuerdo	No estoy segura	
8. Si usa un paño de lavar los platos para limpiar el jugo de la carne o pollo, puede continuar usándolo sin riesgo alguno siempre y cuando lo enjuague con agua tibia.	Estoy de acuerdo	No estoy de acuerdo	No estoy segura	
9. Cuando el interior de una hamburguesa cocida no se ve rosado, usted sabe que todas las bacterias dañinas han sido destruidas y puede comer la hamburguesa sin ningún peligro.	Estoy de acuerdo	No estoy de acuerdo	No estoy segura	
10. Al comprar lechuga, ¿cuál de los siguientes productos es el más seguro?	Precortada, empacada y refrigerada	Cabeza entera refrigerada	Cabeza entera a la venta sin refrigerar	No estoy segura
11. ¿De qué manera debe secarse las manos para asegurarse de que se mantengan limpias?	Con una toalla desechable de papel	Con un paño de cocina	Con una toalla de baño	No estoy segura

More questions on the back

Estas preguntas están relacionadas con los alimentos que a usted le gusta comer y cómo los prepara. Esto no es una prueba, por lo tanto todas las respuestas son válidas. Por favor, haga un círculo alrededor de la respuesta que mejor describa la forma en que usted hace las cosas.

12. ¿Con qué frecuencia se lava las manos con jabón y agua tibia de la llave antes de preparar los alimentos?	Nunca	Rara vez	Algunas veces	Casi siempre	Siempre
13. Después de jugar con su mascota y antes de comer una botana, ¿con qué frecuencia se lava las manos con jabón y agua tibia de la llave?	Nunca	Rara vez	Algunas veces	Casi siempre	Siempre
14. Después de cortar carne, pollo o mariscos crudos, ¿con qué frecuencia lava todos los utensilios que tocaron los alimentos con agua caliente jabonosa (por ej., tabla de cortar, cuchillo, mostrador) antes de continuar cocinando?	Nunca	Rara vez	Algunas veces	Casi siempre	Siempre
15. ¿Con qué frecuencia lava muy bien las frutas y verduras frescas con agua de la llave antes de comerlas?	Nunca	Rara vez	Algunas veces	Casi siempre	Siempre
16. ¿Con qué frecuencia se lava las manos con jabón y agua tibia de la llave después de preparar carne, pollo o mariscos crudos y antes de continuar con la preparación de los alimentos?	Nunca	Rara vez	Algunas veces	Casi siempre	Siempre
17. ¿Utiliza un termómetro para alimentos para asegurarse que las hamburguesas están bien cocidas?	Nunca	Rara vez	Algunas veces	Casi siempre	Siempre
18. ¿Con qué frecuencia utiliza un termómetro para refrigeradoras para medir la temperatura de su refrigerador?	Nunca	Rara vez	Algunas veces	Casi siempre	Siempre
19. ¿Con qué frecuencia refrigera los sobrantes de comida como arroz cocido y frijoles refritos dentro de las siguientes dos horas después de prepararlos o servirlos?	Nunca	Rara vez	Algunas veces	Casi siempre	Siempre

¿Usted come actualmente los alimentos siguientes? Por favor haga un círculo alrededor de SI o NO.

20. Huevos con la yema líquida	SI	NO
21. Pescado o mariscos crudos como sushi, sashimi, ceviche u ostras crudas	SI	NO
22. Masa cruda casera para galletas que contienen huevos crudos	SI	NO
23. Brotes crudos de alfalfa o de otros tipos	SI	NO
24. "Hot dogs"/salchichas fríos	SI	NO
25. Quesos blandos hechos con leche sin pasteurizar como el Brie o Camembert	SI	NO
26. Quesos caseros blandos tipo mexicano como el queso fresco o el queso blanco	SI	NO
27. Jugos y licuados preparados con frutas y verduras crudas	SI	NO
28. Carnes frías y para fiambres, como pavo, jamón, mortadela (bologna) rebanados	SI	NO
29. Leche cruda (sin pasteurizar)	SI	NO

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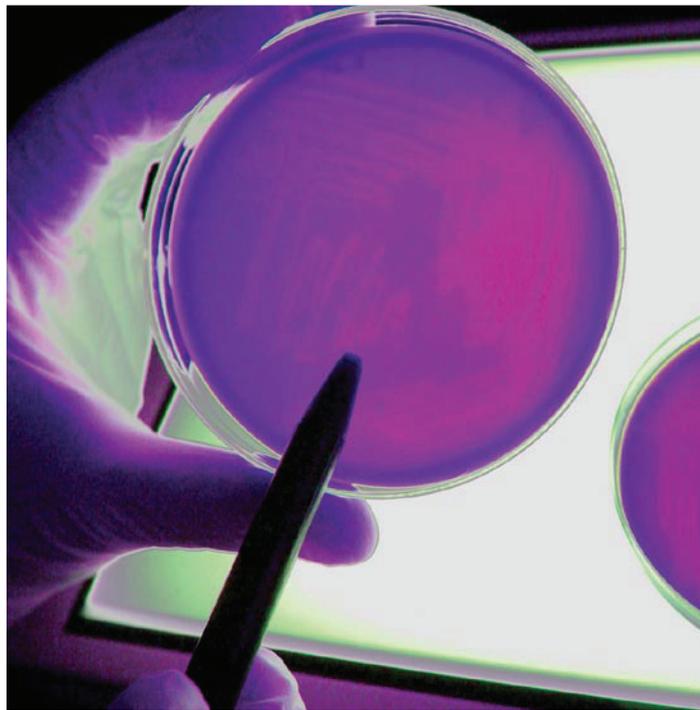
CONTENT ANALYSIS

CONTENT ANALYSIS				
Food Safety Knowledge Questions	LESSON			
	1 <i>Listeria monocytogenes</i>	2 <i>Toxoplasma gondii</i>	3 <i>Salmonella</i> spp.	4 <i>Campylobacter jejuni</i>
How much have you heard about the bacteria <i>Salmonella</i> ?			X	
How much have you heard about the bacteria <i>Listeria</i> ?	X			
How much have you heard about the parasite <i>Toxoplasma gondii</i> ?		X		
How much have you heard about the bacteria <i>Campylobacter</i> ?				X
During pregnancy, are you at high risk of getting foodborne illness caused by <i>Listeria</i> ?	X			
During pregnancy, are you at high risk of getting foodborne illness caused by <i>Toxoplasma gondii</i> ?		X		
Using the same cutting board to cut up raw chicken and then cut raw vegetables for a salad is safe as long as you wipe the board off with a clean cloth between the different foods.		X	X	X
If you use a dishcloth to wipe up liquid from meat or chicken, you can safely continue to use the cloth for washing dishes if you rinse the dish cloth in warm water.		X		
When you can't see any pink color inside a cooked hamburger patty you know all of the harmful germs have been killed and the hamburger is safe to eat.		X		X
When purchasing lettuce, which of the following is the safest product?			X	
How should you dry your hands to be sure your washed hands stay clean?		X		
Food Safety Behavior Questions				
How often do you wash your hands with soap and warm running water before preparing food?		X	X	X
After playing with a pet and before getting a snack, how often do you wash your hands with soap and warm running water?		X		

CONTENT ANALYSIS

CONTENT ANALYSIS				
Food Safety Behavior Questions	LESSON			
	1 <i>Listeria monocytogenes</i>	2 <i>Toxoplasma gondii</i>	3 <i>Salmonella</i> spp.	4 <i>Campylobacter jejuni</i>
After cutting raw meat, chicken, or seafood, how often do you wash in hot, soapy water all the items that touched the raw food (e.g. cutting board, knife, counter top) before you continue cooking?		X	X	X
How often do you thoroughly rinse fresh vegetables under running water before eating them?			X	X
How often do you wash your hands with soap and warm running water after working with raw meat, chicken, or seafood and before you continue cooking?		X	X	X
How often do you use a thermometer to tell if hamburger patties have been cooked enough?				X
How often do you use a refrigerator thermometer to check the temperature of your refrigerator?	X			X
How often do you refrigerate leftovers like cooked rice or refried beans within two hours of preparing or serving them?	X			X
Since becoming pregnant, do you eat the following foods?				
Eggs with runny yolks	X		X	
Raw fish or seafood like sushi, sashimi, ceviche or raw oysters	X			
Unbaked, homemade cookie dough that contains raw eggs	X			
Alfalfa or other raw sprouts	X		X	
Cold hot dogs	X			
Soft cheese made from unpasteurized milk like brie or Camembert	X			
Homemade Mexican soft cheeses like queso fresco or queso blanco	X			
Juices and smoothies made with raw fruits and vegetables			X	
Cold deli or luncheon meats like sliced turkey, ham or bologna	X			
Raw (unpasteurized) milk	X		X	X

FOOD



Solving the Mystery: How *Listeria* Enters People's Homes, Kitchens, Lives

Pam Steele was 38 and eight months pregnant in 1990 when she battled what she thought was a severe case of flu. The diagnosis: listeriosis, caused by the microorganism *Listeria monocytogenes*. Steele's daughter was stillborn, and Steele nearly lost her own life.

"I had had problems getting pregnant, but everything seemed to be going OK," said Steele, of Cambridge. "It was devastating. I couldn't help but wonder, where did I get this? That's the scary part. We never figured it out."

Now, Steele is helping researchers solve such mysteries.

Lydia Medeiros and Jeff LeJeune, food safety scientists with the Ohio Agricultural Research and Development Center, have teamed up with Colorado researchers in a \$600,000 study to examine how *Listeria* might enter people's homes and kitchens.

Only about 1,500 to 2,500 Americans get listeriosis each year, but a significant number — 500 — die.

In Ohio, the Department of Health officially reports 37 cases annually, with the probable actual number twice as high. It's estimated listeriosis costs Ohioans \$74 million each year.

Its high mortality rate has always made listeriosis a serious concern. But the disease made headlines in 1998 when 40 people in 10 states became ill and four died due to undercooked hot dogs.

Despite similar periodic outbreaks, most cases occur erratically, Medeiros said: "We just don't know where sporadic cases come from."

During their study's first six months, the researchers signed up 27 of 50 households they want to examine. Half of the families live on dairy farms or around five or more cows, sheep, or other ruminant animals, which tend to shed *Listeria* in their feces.

"We are partly looking at this as an occupational safety and health issue," LeJeune said. "Are farm families more

exposed to *Listeria monocytogenes*? Are farmers bringing their work home with them — literally — on their clothing? If that is occurring, how can we interrupt the pattern?" Nonfarm rural households act as controls. The researchers use molecular biology to conduct DNA sequence analysis of any *Listeria* bacteria they find to help determine if *Listeria* found in different places comes from the same source.

Medeiros said patterns are emerging. "We're discovering what the most important factors in controlling *listeria* are," she said. "Next year, we'll teach participants how to control factors that put them at risk, and in the third year we'll go back and reassess. There has never been a study to do this."

Now 54, Steele has a 10-year-old son — the result of a pregnancy many thought wasn't possible after her bout with listeriosis. She is proud to participate. "When I saw the notice in the newspaper, I knew immediately I would sign up. What's important is finding information that can help someone else."

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Bringing Knowledge to Life



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Certificado de Culminación

Esto es para certificar que

Ha terminado el programa Healthy Baby, Healthy Me
(Bebé Saludable, Yo Saludable)

Nombre y Título del Presentador

Fecha

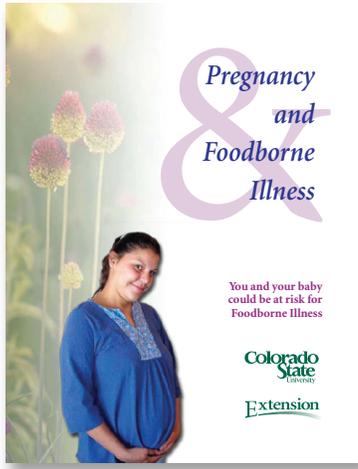


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ORDER FORM

Pregnancy and Foodborne Illness Booklet



This 8 page publication, developed as part of a food safety education project, is available in English and Spanish. It provides detailed information about specific pathogens of concern during pregnancy and how to prevent or reduce the risks of foodborne illness for pregnant women.

Please complete the following information and return this order form with a check for the amount requested to the following address:

Food Science and Human Nutrition
 Attention: Mary Schroeder/Patricia Kendall
 Colorado State University
 Fort Collins, CO 80523-1571

Phone: 970-491-7335
 Fax: 970-491-7252
 Email: Patricia.Kendall@colostate.edu

QUANTITY	COST PER ITEM	PRICE
Minimum order: 25 booklets _____ English _____ Spanish	\$1.00 each	\$
(plus \$10.00 shipping & handling)		\$10.00 S & H
TOTAL		

Name _____

Mailing Address _____

City _____ State _____ Zip _____

Date _____ Phone (_____) _____

Please make check out to Colorado State University. Sorry, but we are unable to process credit card orders.

Thank you!

For Office Use Only:	Date Rec'd:	Amt Rec'd:	Date Sent:
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This material was based on work was supported by the National Integrated Food Safety Initiative,
U.S. Department of Agriculture Cooperative State Research, Education and Extension Service,
project 2006-51110-03663

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