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The Truth about the Unseen Bugs around the Farm, at the Fair, and in Your Food!

Cooperative Extension Service

South Dakota State University

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The Truth about the Unseen Bugs around the Farm, at the Fair, and in Your Food!



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Dear Educator:

The following is a lesson plan to teach children in grades K-8 about foodborne illness, particularly *E. coli* O157:H7. Several activities are included – you may choose or adapt those that are appropriate for age group and education level. This educational tool includes the following:

1. Ideas for introduction of subject.
2. Information needed to lecture about and explain *E. coli* O157:H7 and other pathogens.
3. Activities for children to develop a better understanding of the subject.
4. Additional resources.

We hope that this will be a valuable tool for educating children and decreasing their risk of becoming infected with *E. coli* O157:H7 and other human-animal pathogens. A special “thank you” is extended to the Midwest Dairy Council for providing funds to support this educational effort.

*South Dakota Cooperative Extension Service
Food Safety Program*

Lesson: Truth about the Unseen Bugs around the Farm, at the Fair, and in Your Food!

Goal: Decrease the risk of the incidence of *E. coli* O157:H7 and other foodborne pathogens by educating children and families in the state of South Dakota.

Objectives:

1. Participants will gain knowledge of the pathogenic microorganisms that are commonly associated with farm animals (i.e., *E. coli* O157:H7).

Primary Elementary Level (K-3)	Upper Elementary/Junior High
Introduction: <ul style="list-style-type: none"> • Martha's Bug Story • story discussion 	Introduction: <ul style="list-style-type: none"> • Martha's Bug Story • open discussion, with follow-up questions
Present new material: <ul style="list-style-type: none"> • bacteria sketch • being food safe at the fair and on the farm • hand-washing activity – Bacteria Hitching a Ride! 	Present new material: <ul style="list-style-type: none"> • bacteria (emphasis on <i>E. coli</i>) • reducing risk on the farm and at the fair • hand-washing activity – Bacteria Hitching a Ride!
Additional activities: <ul style="list-style-type: none"> • ball pass • glow-germ kit • picture chart • review with "Stay Healthy Around Animals" display 	Additional activities: <ul style="list-style-type: none"> • ball pass • glow-germ kit • public service announcement or commercial • picture chart • review with "Stay Healthy Around Animals" display
Wrap-up: <ul style="list-style-type: none"> • review "Stay Healthy Around Animals" • evaluation 	Wrap-up: <ul style="list-style-type: none"> • review "Stay Healthy Around Animals" • evaluation

2. Participants will identify hygienic practices to use when around farm animals and pets.

Supplemental material:

- *E. coli* in My Food...Huh?
- Color Can Be Confusing
- Washing Produce
- And the Doctor Said...

Martha's Bug Story
(primary elementary level: K-3)

Q: How many of you know what bacteria are?

A: Bacteria are germs or bugs so small that it can only be seen with a microscope. Some germs can make you sick. I am going to tell you a true story about a little girl who got very sick.

STORY [hold up the picture of Martha while reading the story]: Martha was not even two years old when she got sick by a bacteria strain called *E. coli* O157:H7. She had very painful stomach pains and diarrhea. Martha's parents took her to the hospital. The doctors found out that Martha was very sick because she had the terrible bacteria in her system. Because Martha was so young, her small body had to fight really hard to get over this bacterium, and this fight caused her to lose a lot of weight. It ended up being too hard for Martha's body to fight the infection on its own, so she needed to have a blood transfusion. After her blood transfusion, Martha's body was able to fight off the infection. In the months that followed, Martha slowly recovered and gained back the weight she had lost when she was sick.

Nobody really knows how Martha got this terrible bacterium, *E. coli* O157:H7, into her body. She might have got it when she went through a cattle barn with her family at the county fair, where she may have picked up the bacteria by touching a fence or an animal. Or Martha could have crawled around her dad's work boots, which had animal manure on them. Since Martha was so little, it only took a very small amount of bacteria to make her sick. Thankfully, this story has a happy ending for Martha and her family. Today she is a healthy and happy seven-year-old (April 2008).

Story Discussion:

Have an open discussion with the students about the story. The following questions can be addressed:

Q: How many of you thought the only way to get infected with *E. coli* O157:H7 or other germs was from eating food that has germs on it?

Q: Does anyone have a story they would like to share about either *E. coli* O157:H7 or a different foodborne illness? Does anyone know someone that was infected (or "got sick") with *E. coli* O157:H7 or a different foodborne illness?

Tell students: *Today we will be learning about E. coli O157:H7 and other disease-causing microorganisms and how you can keep protected from them.*



Martha at five years old with her show calf.

Bacteria Sketch

(primary level elementary)

Materials: crayons or colored markers; paper (8x11 or bigger)

Goal: Get the students to think about bacteria and germs.

Have the students use their imagination to draw what they think germs or bacteria look like; encourage the students to be very creative. After 5 to 10 minutes, let all the kids hold up their drawings to show everyone.

Introduce the topic of germs and bacteria by asking the students the following:

Q: Can you see a germ or bacteria?

A: Only with a microscope.

Q: Why did you draw your germ or bacteria like that?

Q: Are bacteria or germs good or bad?

A: Bacteria can be both good and bad. Bacteria are needed to make yogurt, cheese, and other foods. It is also need for making medicine (such as insulin that helps to keep people with diabetes healthy). Most bacteria do not cause you to get sick. We have bacteria all around us. However, some bacteria can make you sick.

Tell students: *Today we are going to talk about E. coli – a germ or bacteria that can make people sick.*

Show the picture of E. coli.



E.coli 0157:H7

What *E. coli* O157:H7 really looks like.

(*E. coli* magnified 1000 times)

Picture from: <http://www.cdc.gov/healthypets/diseases/ecoli.htm>

Present new material:

E. coli is a common type of bacteria that can get into food. The strange thing about this bacteria — and lots of other bacteria — is that they are not always harmful to you; in fact, many are helpful. We have bacteria all around us, and they are not harmful.

E. coli normally lives inside your intestines, where it helps your body break down and digest the food you eat. Unfortunately, certain types (called strains) of bacteria can make you sick.

Some foods that *E. coli* has been found in include fresh spinach, apple cider, lettuce, deer jerky, unpasteurized milk, watermelon, hamburgers, and others.

Cattle can be infected by *E. coli*. But cattle don't get sick from it, just people do. If cattle have *E. coli* inside of them, it will be in their manure (poop). How many of you have seen a cow pie? Other animals, such as deer, also carry *E. coli* and don't become ill. (Review the diagram "How *E. coli* can get you sick" on the following page.)

Adapted from the Kids Health for Kids website sponsored by the Nemours Foundation:
http://kidshealth.org/kid/stay_healthy/food/ecoli.html.

Q: How do you think you can keep from getting sick from *E. coli*?

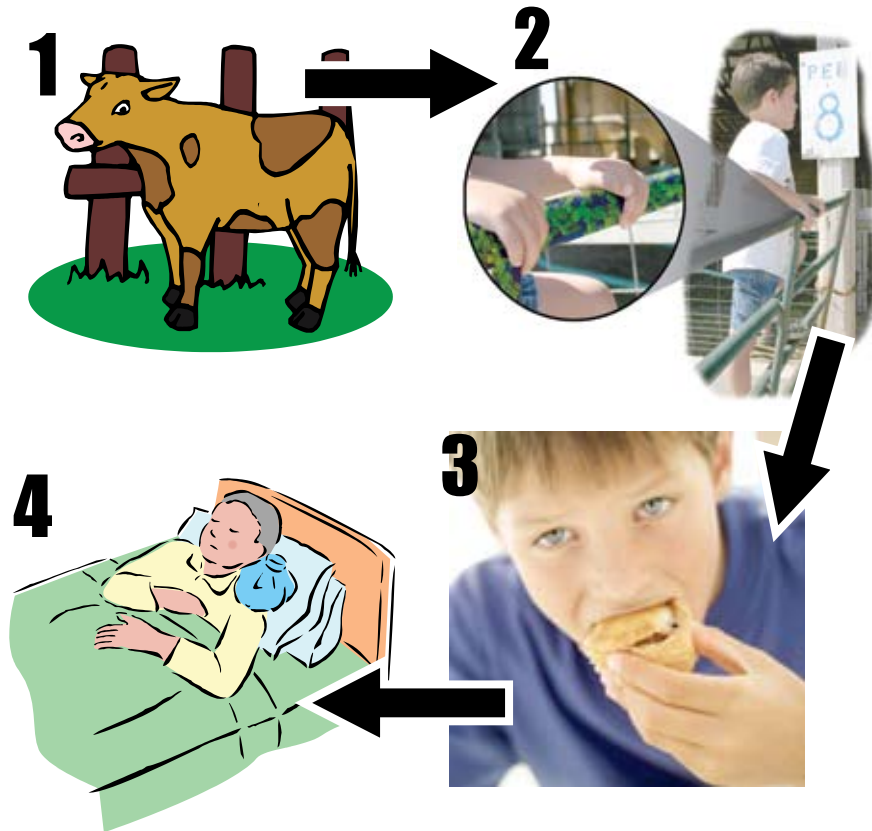
A: All of the following are possible answers:

- The most important way to keep from getting sick from *E. coli* and other germs is by washing our hands: a) after we get done playing outside, b) after touching animals (even your pets), c) before we eat, and d) after going to the bathroom.
- Make sure that you always complete all the steps when washing your hands to make sure that you wash away the unseen bugs.
- Another way to help reduce the risks of *E. coli* is to keep food and drink out of animal areas like a petting zoo at the fair.
- Also, before you go into the family living area after completing chores, make sure you change your clothes and boots/shoes.

Additional interactive resource/activities can be obtained from the following University of Nebraska-Lincoln websites:

<http://lancaster.unl.edu/food/coloringsheet.pdf>

<http://lancaster.unl.edu/food/sinkgerms.htm>



How E. Coli O157:H7 can get you sick.

1. The cow gets manure that contains E. Coli O157:H7 on the fence.
2. The boy touches the fence.
3. Then he eats something without washing his hands.
4. He can get terribly sick.

Hand-washing activity

(primary level elementary and upper elementary/middle school)

Get it right – don't let bacteria hitch a ride on your hands!

Materials: scissors; laminator

Distribute the photos of hand-washing steps to 5 different youth. Have all the youth in the group work together to have the students (with the photos held in front of them) stand in the correct order of hand washing. Use this opportunity to reinforce correct hand-washing procedure.

The correct photo order: B – E – C – A – D.

Hand-washing steps:

1. Wet hands with warm running water and apply soap.
2. Rub hands to make a lather for 20 seconds (sing the ABC song).
Get between fingers, and above the wrists.
3. Rinse thoroughly with warm running water.
4. Dry hands with a clean towel or a paper towel, not on clothing.
5. Turn water off with paper towel in hand, and discard in trash.









D



Introduce the topic:

Martha's Bug Story (story shared by Martha's mother, Donna Moenning)

Share the following story – consider having students read the story. (A picture of Martha is included to share with the students while reading the story.):

One day, while driving home from school, my five-year-old daughter, Martha, shared her purpose in life: “To not eat a bug.” *Wow*, I thought to myself, and then replied, “I think you’re right, Martha. You are absolutely right.”

This is “Martha’s Bug Story.” I write this as a mother, thankful because my story has a happy ending, and because I believe situations in life do happen for a reason. It’s this mother’s wish, and Martha’s calling, to help others avoid what happened to her.

Martha’s bug is *E. coli* O157:H7, a bacteria that didn’t exist when I was growing up on a dairy farm drinking raw milk. This strain of *E. coli* was identified in the 1980s.

In August 2002, Martha was fighting for her life against this dangerous, often lethal strain of bacteria. Initially, we thought Martha’s onset of diarrhea was normal for a teething child. But at night she was more than crabby; she screamed. There was no consoling her. That was so heartwrenching for me, as her mother. Just 16-months-old, Martha couldn’t tell us what was wrong. We later learned her screams were due to stomach cramps from the intensifying *E. coli* infection. After 10 days of painful symptoms and several visits to the clinic, test results finally revealed Martha was suffering from *E. coli* O157:H7. Martha was rushed to the Mayo Children’s Hospital in nearby Rochester, Minnesota. She was hooked up to intravenous fluids to avoid dehydration and the overworking of her kidneys.

In the hospital, Martha progressively got worse. We were told to be prepared to stay for a long time, but no one could imagine just how long it would be. There are no medications that can be given for those infected with *E. coli*. It was up to Martha’s tiny body to fight these bacteria. She had lost 5 pounds already: a significant amount of weight for a 16-month-old that only weighed 24 pounds prior to this ordeal.

The second night in the hospital, Martha’s blood hemoglobin dropped to dangerous levels. Doctors hurried to give her a blood transfusion to help her body fight the infection. It was during the 3 hours of the transfusion, watching her unconscious body lay in the hospital bed, that the seriousness of the situation really hit us.

Blood samples were drawn every 4 hours from Martha, another painful aspect of this whole situation. Her blood vessels were small to begin with, and the frequent needle injections were uncomfortable for us to watch, but even more excruciating for Martha. Thankfully, within 24 hours of the blood transfusion, the results of her blood tests were encouraging.

Unlike many *E. coli* patients, Martha did not need kidney dialysis or a second transfusion. Remarkably, she was released from the hospital after 5 days, returning for frequent follow-up blood tests. The cramps and discomfort continued as she slowly recovered in the following months. It was late September before

the *E. coli* was completely out of her system, October before she slept through the night, and December before her blood levels were back to normal. It wasn't until Martha celebrated her second birthday in April 2003 that she finally gained back the 5 pounds she had lost through the sickness.

Where and how did Martha become infected with this devastating bacteria?

The exact source of Martha's infection will never be known. With four little front teeth, Martha was hardly chomping down cheeseburgers. In fact, food has been ruled out by her medical providers as a source, given the type of food she was consuming at her age. Also, the foods we had eaten as a family in the week leading up to the onset of her symptoms were also ruled out.

Potential sources of infection include a visit to the county fair, where Martha was pushed in a stroller through the cattle barns; while there, she may have touched a dirty fence rail or animal. Another potential source was the time when Martha crawled towards her dad's manure-soiled farm boots; like many small children, Martha sucked her thumb, making it that much easier for her to ingest something without us knowing.

We share "Martha's Bug Story" in hopes that other farm families, especially those with small children, won't experience what Martha did. The risks are real.

Today, Martha (born April 2001) is a healthy seven-year-old, and doctors believe she won't experience any long-term effects from the infection.

This is "Martha's Bug Story," and she wanted me to tell it to you because she doesn't want any other farm children to have a bug story of their own.

The Moenning family also raises their faith in God in Martha's recovery after being infected with *E. coli* O157:H7.

Story discussion:

Have an open discussion with the students about the story. The following questions can be asked:

Q: How many of you thought the only way to get infected with *E. coli* O157:H7 or other germs was from eating contaminated food?

Q: Does anyone have a story they would like to share about either *E. coli* O157:H7 or a different foodborne illness? Does anyone know someone that was infected with *E. coli* O157:H7 or a different foodborne illness?

Tell students: *Today we will be learning about E. coli O157:H7 and other disease-causing microorganisms, and how you can keep protected from them.*



Martha at five years old with her show calf.

Present new material:

Consider asking questions that set the stage for bacteria in general.

Q: Are bacteria good or bad?

A: Bacteria are both good and bad. In fact most are good, but some can also make you sick. Bacteria are all around us and on us.

Q: Do you have bacteria on your hands?

A: Yes, even after washing your hands you still have bacteria on your hands. THAT IS A GOOD THING. We have bacteria on our hands that help to keep our skin healthy. However, we can also have bacteria that cause disease hitching a ride on our hands; these harmful bacteria can and need to be washed away.

E. coli is a common type of bacteria that can get into food, like beef and vegetables. *E. coli* is short for Escherichia coli. The strange thing about these bacteria — and lots of other bacteria — is that they're not always harmful to you. In fact, many are helpful. We have bacteria all around us, and they are not harmful.

E. coli normally lives inside your intestines, where it helps your body break down and digest the food you eat. Unfortunately, certain types (called strains) can cause a very serious infection. For example, someone who has an *E. coli* O157:H7 infection may have these symptoms:

- bad stomach cramps and belly pain
- vomiting
- diarrhea, sometimes with blood in it

One very bad strain of *E. coli* has been found in fresh spinach, apple cider, lettuce, deer jerky, unpasteurized milk, watermelon, hamburgers, and other foods.

Cattle can be infected by *E. coli* O157:H7. But, cattle don't get sick – just people do. If cattle have *E. coli* inside of them, it will be in their manure (poop). How many of you have seen a cow pie? Other animals, such as deer, also carry *E. coli* and don't become ill.

Adapted from the Kids Health for Kids website sponsored by the Nemours Foundation: http://kidshealth.org/kid/stay_healthy/food/ecoli.html.

Reducing the Risk on the Farm and at the Fair

Q: What are some ways we can reduce the risk for being infected with E.coli 0157:H7 and other pathogens – especially on the farm or at the fair?

A: Possible answer components are below:

- **Hand washing is the #1 defense against spreading diseases.**
 - When at the fair or a petting zoo, remember to find the hand-washing stations.
 - Always wash your hands after petting animals or touching the animal's pens, especially before eating and drinking.
- **Hand sanitizer.**
 - Use alcohol-based hand sanitizers if running water and soap are not available.
 - Dirt, food, or anything else on hands can make the sanitizer less effective.
 - Remove visible contamination and dirt before applying sanitizer.
 - Use hand sanitizers with alcohol concentration of 60% or higher.
- **Food and drinks.**
 - Keep food and drinks out of animal areas.
 - Do not share your food with animals.
 - Do not eat or drink raw (unpasteurized) products, including milk products and juices.
 - Food should be prepared, served, and eaten only in areas where animals are not permitted.
- **Children.**
 - Children younger than 5 years old need supervision.
 - Never allow children to put their hands or objects in their mouth while interacting with animals.
 - Hand washing should be supervised.
 - In animal areas, do not take or use strollers, bottles, pacifiers, spill-proof cups, or toys.
- **Clothing.**
 - Don't wear barn/chore boots and clothing into the house living area.
 - Change clothes after doing chores. Do not enter family living area with chore clothes on.
 - Leave barn/chore clothing in a designated area away from family living area.

Prepare medications and bottles used to feed baby animals away from family living area. Mix milk replacer and prepare medications for livestock in a designated area that is not part of the family living quarters. Example area for preparing medications and bottles: a sink with hot running water that is not located in the kitchen. CLEAN and SANITIZE all surfaces after the preparation and cleaning of bottles.

Additional Activities

Ball Pass (elementary level, K-3)

Objective: Youth will identify importance of hand washing after playing outside and before eating.

Materials: ball; stickers; and sandwich

I want to tell you a story to help you see how germs can spread if we don't wash our hands the correct way.

I'm holding this ball. [Hold up a ball.]

Now let's pretend that I have a cold. [Pretend to sneeze.]

Oh no! I forgot to cover my mouth when I sneezed. [Put several stickers on the ball and say that they represent germs.]

Now look at all the germs that have stuck to the ball!

Now say, *It's time for recess*, and ask “[student's name #1]” to play catch. [Toss the ball to student #1.]

Oh no! Now “[name #1]” has touched the ball. That means some of the germs have gone from my hand, to the ball, and are now on him/her! [Take some stickers off the ball and put them on the student's hand.]

Later, “[name #1]” wants to play tag. He tags “[student's name #2]” on the hand. Oh no, “[name #2]!,” when “[name #1]” tagged you, some of the germs from his/her hand went on to you! [Take some stickers and place them on student #2.]

Now “[name #2]” goes to lunch. He/she forgets to wash his/her hands. He/she picks up a sandwich; his/her hand touches the sandwich – and what happens to the germs? That's right. Now they're on the sandwich that she's eating. YUCK! And when those germs get inside of you, they can make you really sick!

And that's why we must always remember the right way to wash our hands.

Adapted from the NFS Scrub Club website: http://www.scrubclub.org/assets/pdf/teachers_guide.pdf.

Questions and answers for “ball pass” exercise:

Q: Does this mean we shouldn't play ball and other games?

A: No – It means that when we are done playing, wash our hands.

Q: Does this mean germs are bad?

A: No – Just remember to wash your hands after playing outside.

[Review the 6 steps of hand washing.]

Glow Kit (all grade levels)

Objective: Students will gain knowledge and utilize recommended hand-washing methods.

Materials: glow kit; dark room

You can use the glow kit in a variety of different ways. The kit includes a lotion or powder that fluoresces under a backlight. You can place the powder on a piece of paper, and then have the children pass the paper around – without them knowing the germs are on it. After the lecture, take the children into a room that is dark and use a black light to see if the children have germs on them.

You can also use the lotion in a number of ways. For example, you could have each student put the lotion on their hands and then go wash them, but have them skip different steps; after they wash their hands, take them into a room that is dark and use the black light to see the difference.

Public Service Announcement (PSA) or Commercial (upper middle school/junior high)

Objective: Students will demonstrate knowledge gained in preventing foodborne illnesses at the fair and on the farm.

After introducing all the new material, break the students into groups. Announce to the class that they are going to work in groups to present a 30 to 60 second public service announcement or commercial on the information they just learned. You can either let the students pick an idea or give them options. For example:

- proper hand washing
- prevention of *E. coli* O157:H7
- sources of *E. coli* O157:H7
- have students make up an *E. coli* O157:H7 outbreak and explain the reason for the incident

After completing their PSA or commercial, have them present to the group or possibly read the PSA on the local radio station. Discuss the ideas and concepts presented.

Picture Chart (upper elementary and junior high)

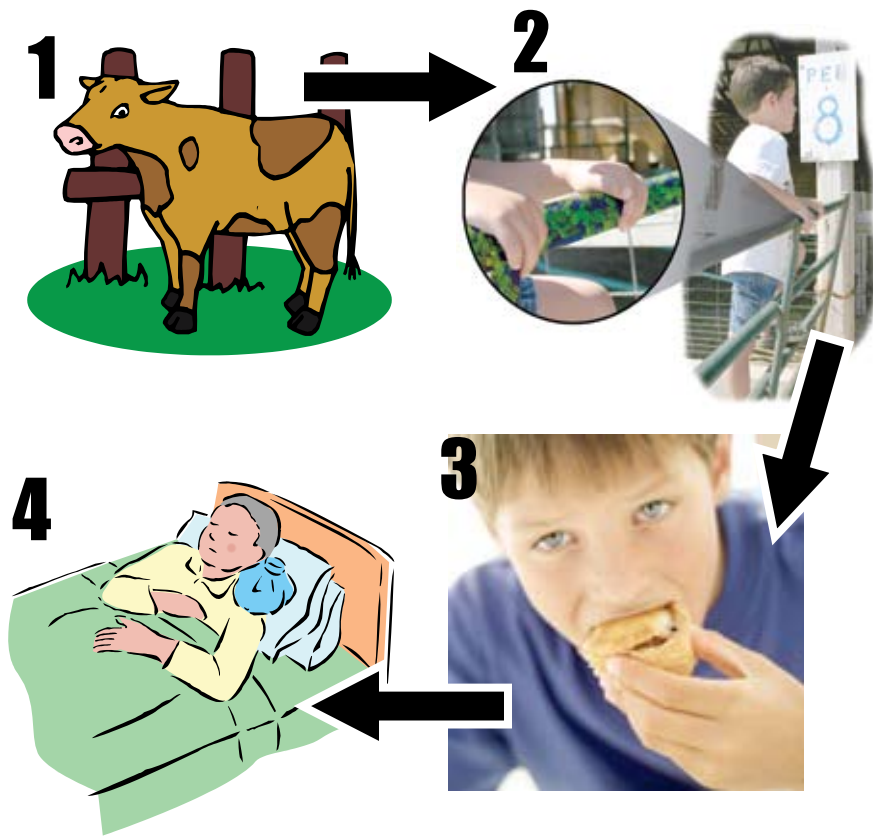
Objective: Students will gain a better understanding of how foodborne illnesses can be transferred into food and how to prevent the transfer of foodborne illnesses.

Materials: newsprint paper or large piece of paper; markers

First, break the children into groups. Then give each group one piece of newsprint paper (or large piece of paper) and markers. Tell the groups that they need to draw pictures showing how someone might get infected with *E. coli* and how to prevent it. Possible ideas for each group:

- 1) How *E. coli* or other bacteria gets into the food.
- 2) How to prevent *E. coli* on the farm.
- 3) How to prevent *E. coli* and other bacterial diseases while at the fair.

After the groups have completed the task, have each individual group talk in front of the class to share the message of their picture chart. Example below:



How E. Coli O157:H7 can get you sick.

The cow gets manure that contains E. Coli O157:H7 on the fence, the boy touches the fence, then he eats something without washing his hands, making him sick.

Supplemental Material

***E. coli* in My Food...Huh?**

Q: How do you think we could get *E. coli* into our food?

A: Possible answers:

- **Vegetables grown in a garden or fruit grown in an orchard that may have had wild animals, pets, or even farm animals running in it.** Apples fall from the trees and are not washed before they are eaten. Gardens or vegetable fields that have been flooded with water that may have been contaminated with manure.
 - **Animals that have *E. coli* or other pathogens on their hide or hair.** When an animal is butchered, those pathogens may get on the meat (does not happen very often). If *E. coli* is ever found in even a small sample of meat, all the meat from that batch is recalled.
 - **Manure on the milk cow's udder.** Manure may get into the milk. Before milking, udders need to be washed, and milk needs to be pasteurized.
 - **Cross-contamination.** Same cutting board and/or utensils used without being properly washed. Raw meat and ready-to-eat foods and beverages in the same cooler.
 - **Not washing hands properly after handling raw meat.**
 - **Not washing hands properly after going to the bathroom.**
- * Even an excessively small amount (10 microorganisms) is enough germs to make a person sick.

Adapted from the Kids Health for Kids website sponsored by the Nemours Foundation: http://kidshealth.org/kid/stay_healthy/food/ecoli.html.

Color Can Be Confusing

How to protect yourself from *E. coli* in the meat you eat.

Because meat and poultry products can contain harmful bacteria, it is important that ground beef be cooked thoroughly. Future incidents of foodborne illness may be prevented if food handlers understand and act on a simple fact: Thoroughly cooking, to an internal temperature of 160°F throughout, kills *E. coli* O157:H7. Do not just look at the color of the inside of your patty to see if it is done or not. Color should never be used as an indicator of doneness.

Have students practice taking the temperature of different foods. Cold foods such as potato salad should be 40°F or colder. Other perishable foods such as milk and cold deli meats should also be 40°F or colder. Also, test some foods that have just been cooked to see what temperature they are. Or take the temperature of a leftover that has been sitting out for a while (i.e., 1 to 2 hours). Have the students actually take the temperature. Consider using fake food models to teach how to take temperatures. For example, a *bimetallic stemmed thermometer would be placed into the side of a hamburger patty.

Make sure students know the following:

- Hot Foods Hot.
- Cold Foods Cold.
- The temperature danger zone (TDZ) for perishable foods is 40 to 140°F.
- Never let foods that are perishable in the TDZ for more than two hours.

* A bimetallic stemmed thermometer is also referred to as an instant read dial thermometer. 2¼ inches of the thermometer tip must be inserted into the food; therefore, place the thermometer into the side of thin foods such as chicken breasts, ground-meat patties, and chops.

Adapted from the United States Department of Agriculture: http://www.fsis.usda.gov/fact_sheets/Meat_Preparation_Fact_Sheets/index.asp.

Washing Produce

How to protect yourself from *E. coli* in the produce you eat:

Cleaning Fruits and Vegetables

A. Maintaining the safety of fresh produce

- Always wash hands with warm water and soap for at least 20 seconds before and after handling fresh fruits and vegetables.
- Clean all surfaces and utensils with hot water and soap – including cutting boards, countertops, peelers, brushes, and knives that will touch fresh fruits or vegetables before and after food preparation.

B. Washing

- When ready to serve, rinse fresh fruits and vegetables under running tap water, including those with skins and rinds that are not eaten. Do not wash produce before storage.
- Rub firm-skin fruits and vegetables under running tap water or scrub with a clean vegetable brush while rinsing with running tap water.
- Dry fruits and vegetables with a clean cloth towel or a paper towel.
- Never use detergent or bleach to wash fresh fruits or vegetables. Detergents and bleach are not intended for consumption.

Adapted from the South Dakota State University, College of Agriculture and Biological Sciences Extension Family and Consumer Science, Publication ExtFCS105 Cleaning Fruits and Vegetables <http://agbiopubs.sdstate.edu/articles/ExtFCS105.pdf>.

Handling Fresh Fruits and Vegetables

Start with healthy produce, free of bruises or spots. Remove and discard any bruised or damaged portions when preparing to cook or before eating raw.

To reduce the risk of a foodborne illness, remember the following tips when handling fresh fruits and vegetables:

SEPARATE...

- fresh fruit/vegetables from raw meat, poultry, seafood, and cleaning supplies in the
 - shopping cart,
 - grocery bag,
 - refrigerator/at home,
 - coolers and containers.

REFRIGERATE...

- fresh-cut items such as packaged salads and pre-cut melons.
- cut, peeled, or cooked fresh fruit/vegetables within 2 hours of preparation.

Also:

COOK or DISCARD...

- fruits/vegetables that have touched raw meat, poultry, seafood, or their juices.



DISCARD...

- cut produce left at room temperature for more than 2 hours.

PREPARATION

- Use separate cutting boards for fresh fruit/vegetables and raw meat, poultry, and seafood.

CLEAN...

- cutting board with hot, soapy water after use.

Information for this publication is taken from “Fight Bac! Six Steps to Safer Fruits and Vegetables.” For more information about food safety, go to www.fightbac.org.

Adapted from the South Dakota State University, College of Agriculture and Biological Sciences Extension Family and Consumer Science, Publication ExtFCS205 Cleaning Fruits and Vegetables <http://agbiopubs.sdstate.edu/articles/ExtFCS205.pdf>.



And the Doctor Said...

If someone has symptoms of *E. coli* or other food borne illness, the doctor will run some blood tests and take a sample of the person's stool (poop). The blood and stool can be checked to see if a harmful strain of *E. coli* or other pathogen is present.

Some people recover at home, while others need to be in the hospital. In some cases, *E. coli* poisoning can cause life-threatening kidney problems.

Q: Why is it important to determine if a person has *E. coli* right away?

A: *E. coli* and other pathogens can be passed from person to person. The person eats the contaminated food and gets sick, and passes it on to another. If the correct precautions are not taken with a person infected with this bacteria, they may continue to pass it from person to person, which will cause more problems.

Adapted from the Kids Health for Kids website sponsored by the Nemours Foundation- http://kidshealth.org/kid/stay_healthy/food/ecoli.html.

Additional Resources

SDSU Food Safety Web site includes information from SDSU's College of Agriculture and Biological Sciences on food safety, food service, food handling, and food preservation:

<http://extfcs.sdstate.edu/foodsafety/site/service/servsafe.cfm>.

Food Safety Inspection Service USDA addresses many food safety topics and includes a variety of information and education tools:

http://www.fsis.usda.gov/Food_Safety_Education/index.asp.

Centers for Disease Control Web site offers a variety of information on many topics including farm animals, food safety, and *E. coli* O157:H7:

<http://www.cdc.gov/healthypets/diseases/ecoli.htm>.

NFS Scrub Club Web site includes interactive games for children and educational tools for teachers and parents. The main focus is educating on proper hand-washing techniques:

<http://www.scrubclub.org>.

The Nemours Foundation presents a kids Web site with information on a range of topics. Explains what *E.coli* O157:H7 is and how to prevent being infected:

http://www.kidshealth.org/kid/stay_healthy/food/ecoli.html.

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South Dakota
Cooperative Extension Service

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ESS1508 may be accessed on the web at <http://agbiopubs.sdstate.edu/articles/ESS1508.pdf>