

January/February 2008

## Food Facts For You!

Barbara Ingham, Extension Food Scientist

Department of Food Science, 1605 Linden Drive, Madison, WI 53706-1565

[bhingham@wisc.edu](mailto:bhingham@wisc.edu), 608-263-7383

**Slow Cooker and Food Safety; Use Your Microwave Safely; Get Smart: Know When Antibiotics Work; How Safe are Color Additives; and Food Safety and Health: Your Food Safety Source on the Web**

### Slow Cookers and Food Safety

Opening the front door on a cold winter evening and being greeted by the inviting smells of beef stew or chicken noodle soup wafting from a slow cooker can be a diner's dream come true. But winter is not the only time a slow cooker is useful. In the summer, using this small appliance can avoid introducing heat from a hot oven. At any time of year, a slow cooker can make life a little more convenient because by planning ahead, you save time later. And it takes less electricity to use a slow cooker rather than an oven. Here are some answers to basic questions about slow cooker, or crock pot, safety provided by the USDA. Consumer fact sheets are available in:

English [www.fsis.usda.gov/PDF/Slow\\_Cookers\\_and\\_Food\\_Safety.pdf](http://www.fsis.usda.gov/PDF/Slow_Cookers_and_Food_Safety.pdf) or

En Espanol [www.fsis.usda.gov/PDF/Spanish\\_Slow\\_Cookers.pdf](http://www.fsis.usda.gov/PDF/Spanish_Slow_Cookers.pdf)

#### **Is A Slow Cooker Safe?**

Yes, the slow cooker, a countertop appliance, cooks foods slowly at a low temperature—generally between 170° and 280° F. The low heat helps less expensive, leaner cuts of meat become tender and shrink less. The direct heat from the pot, lengthy cooking and steam created within the tightly-covered container combine to destroy bacteria and make the slow cooker a safe process for cooking foods.

#### **Safe Beginnings**

Begin with a clean cooker, clean utensils and a clean work area. Wash hands before and during food preparation. Keep perishable foods refrigerated until preparation time. If you cut up meat and vegetables in advance, store them separately in the refrigerator. The slow cooker may take several hours to reach a safe, bacteria-killing temperature. Constant refrigeration assures that bacteria, which multiply rapidly at room temperature, won't get a "head start" during the first few hours of cooking.

#### **Thaw and Cut Up Ingredients**

Always defrost meat or poultry before putting it into a slow cooker. Choose to make foods with a high moisture content such as chili, soup, stew or spaghetti sauce. Cut food into chunks or small pieces to ensure thorough cooking. Do not use the slow cooker for large pieces like a roast or whole chicken because the food will cook so slowly it could remain in the bacterial "Danger Zone," between 40 and 140 °F, too long. If using a commercially frozen slow cooker meal, prepare according to manufacturer's instructions.

### **Use the Right Amount of Food**

Fill cooker no less than half full and no more than two-thirds full. Vegetables cook slower than meat and poultry in a slow cooker so if using them, put vegetables in first, at the bottom and around sides of the utensil. Then add meat and cover the food with liquid such as broth, water or barbecue sauce. Keep the lid in place, removing only to stir the food or check for doneness.

### **Settings**

Most cookers have two or more settings. Foods take different times to cook depending upon the setting used. Certainly, foods will cook faster on high than on low. However, for all-day cooking or for less-tender cuts, you may want to use the low setting. If possible, turn the cooker on the highest setting for the first hour of cooking time and then to low or the setting called for in your recipe. However, it's safe to cook foods on low the entire time -- if you're leaving for work, for example, and preparation time is limited. While food is cooking and once it's done, food will stay safe as long as the cooker is operating.

### **Power Out**

If you are not at home during the entire slow-cooking process and the power goes out, throw away the food even if it looks done. If you are at home, finish cooking the ingredients immediately by some other means: on a gas stove, on the outdoor grill or at a house where the power is on. When you are at home, and if the food was completely cooked before the power went out, the food should remain safe up to two hours in the cooker with the power off.

### **Handling Leftovers**

Store leftovers in shallow covered containers and refrigerate within two hours after cooking is finished. Reheating leftovers in a slow cooker is not recommended. However, cooked food can be brought to steaming on the stove top or in a microwave oven and then put into a preheated slow cooker to keep hot for serving.

## **Use Your Microwave Safely**

The microwave oven has become a fixture of the American kitchen. According to *Appliance Magazine*, only DVD players and digital televisions were shipped out of U.S. factories in greater numbers than were microwave ovens and ranges during 2006! The Food and Drug Administration (FDA) regulates the manufacture of microwave ovens and, under a strict safety standard, sets and enforces rules of performance to assure that radiation emissions do not pose a hazard to public health. An important part of microwave oven safety is proper use and maintenance, as recommended by the user manual. The FDA has summarized microwave use guidelines into a new fact sheet: Use Your Microwave Safely.

### **How Microwaves Cook**

Microwave oven safety begins with understanding how these time- and energy-saving technological wonders work. Microwaves—the actual waves produced by these ovens—are a type of electromagnetic radiation. These waves cause water molecules in food to vibrate. These vibrations, in turn, produce the heat that cooks the food. The waves are produced by an electron tube within the oven called a magnetron. They are reflected within the oven's metal interior; can pass through glass, paper, plastic, and similar materials; and are absorbed by food. Contrary to popular belief, microwave ovens do not cook food from the "inside out."

## **Microwave Ovens and Health**

Manufacturers must certify that their microwave ovens comply with strict FDA emission limits. The emission limits are well below the threshold for risk to public health. Most injuries related to microwave ovens are the result of serious thermal burns from hot containers, overheated foods, or exploding liquids. There have been extremely rare instances of radiation injury due to unusual circumstances or improper servicing.

### **Safety Tips for Operation**

- Follow the manufacturer's instruction manual for recommended operating procedures and safety precautions.
- Don't operate a microwave oven if the door doesn't close firmly or is bent, warped, or otherwise damaged.
- Never operate a microwave oven if you have reason to believe it will continue to operate with the door open.
- Don't stand directly against a microwave oven (and don't allow children to do this) for long periods of time while it is operating.
- Refer to the instruction manual for your oven. Some microwave ovens should not be operated when empty.

### **What Else Should You Know?**

Microwave-Safe Containers: Use cookware that is specially manufactured for use in the microwave oven. Glass, ceramic containers, and all plastics should be labeled for microwave oven use. Generally, metal pans or aluminum foil should not be used. The microwaves reflect off them, causing food to cook unevenly and possibly damaging the oven.

Erupted Hot Water Phenomena: Hot-water eruption can occur if you use a microwave oven to super-heat water in a clean cup. ("Super-heated" means the water is hot beyond boiling temperature, although it shows no signs of boiling.) A slight disturbance or movement may cause the water to violently explode out of the cup. There have been reports of serious skin burns or scalding injuries around people's hands and faces as a result of this phenomenon. Adding materials such as instant coffee or sugar to the water before heating greatly reduces the risk of hot-water eruption. Also, follow the precautions and recommendations found in microwave oven instruction manuals; specifically the heating time.

Pacemakers: Today's pacemakers are now designed to be shielded against electrical interference. Consult with your physician if you have concerns.

[The full fact sheet can be found here: www.fda.gov/consumer/updates/microwave112107.html](http://www.fda.gov/consumer/updates/microwave112107.html)

### **Get Smart: Know when Antibiotics Work**

The November 2007 issue of *Emerging Infectious Diseases* contained an article by health care professionals in Wisconsin which looked at the incidence of *Salmonella* Newport infections among Wisconsin residents during 2003-2005. Their findings: **The presence of multidrug resistant *Salmonella* Newport was substantially greater in Wisconsin than elsewhere in the United States!** Persons with multidrug-resistant infections were more likely than persons with antibiotic-susceptible infections to report exposure to cattle, farms, and unpasteurized milk. Here is a summary of that article, followed by helpful tips on using antibiotics wisely.

From 1998 to 2003, the prevalence of multi-drug resistant *Salmonella* Newport in the United States increased substantially, from 1% to 21% of isolates tested. Studies suggest that dairy

cattle are a major U.S. reservoir of multidrug resistant *Salmonella* Newport. In order to determine the scope of the problem in Wisconsin, health care professionals from the University of Wisconsin School of Medicine, the Wisconsin Division of Public Health, and the Wisconsin State Laboratory of Hygiene looked at 268 cases of *Salmonella* Newport diagnosed in Wisconsin from 2003 to 2005. In 65% of cases, the *Salmonella* was resistant to at least 1 class of antibiotics (comprising 3 drugs); and 55% of cases were resistant to 5 or more categories of drugs. Infected individuals were more likely to report contact with cattle, farms, and unpasteurized milk. This is important, and disturbing, because it suggests that fighting human salmonellosis in Wisconsin, especially among farm families and their children may be more difficult than elsewhere.

### **So what is Antibiotic Resistance and Why Is It Important?**

Before we can answer that question, let's consider a few questions about antibiotics. [From the Centers for Disease Control and Prevention: [www.cdc.gov](http://www.cdc.gov)]

#### **What are bacteria and viruses?**

Bacteria are single-celled organisms usually found all over the inside and outside of our bodies, except in the blood and spinal fluid. Many bacteria are not harmful. In fact, some are actually beneficial. However, disease-causing bacteria trigger illnesses, such as strep throat and some ear infections. Viruses are even smaller than bacteria. A virus cannot survive outside the body's cells. It causes illnesses by invading healthy cells and reproducing.

**What kinds of infections are caused by viruses and should not be treated with antibiotics?** Colds, the flu, most coughs and bronchitis and most sore throats (except strep throat) should not be treated with antibiotics. These are viral illnesses and will not respond to antibiotics. Antibiotics should only be taken when prescribed by a doctor to treat bacterial infections.

**But sometimes my doctor prescribes an antibiotics when I do have a cold.** Sometimes a cold (a viral illness) turns into a sinus infection. When then happens, antibiotics can be appropriate treatment; consult your doctor if you think that you have developed a bacterial infection.

**What is antibiotic resistance and why should I be concerned?** Antibiotic resistance occurs when bacteria change in a way that reduces or eliminates the effectiveness of antibiotics. These resistant bacteria survive and multiply - causing more harm, such as a longer illness, more doctor visits, and a need for more expensive and toxic antibiotics. Resistant bacteria may even cause death.

**Does this mean that I should never give my child antibiotics?** Antibiotics are very powerful medicines and should only be used to treat bacterial infections. If an antibiotic is prescribed, make sure your child takes the entire course of medicine; never save the medication for later use.

#### **Here are some facts about antibiotic resistance:**

- Antibiotic resistance has been called one of the world's most pressing public health problems.

- The number of bacteria resistant to antibiotics has increased in the last decade. Nearly all significant bacterial infections in the world are becoming resistant to the most commonly prescribed antibiotic treatments.
- Every time a person takes antibiotics, sensitive bacteria are killed, but resistant germs may be left to grow and multiply. Repeated and improper uses of antibiotics are primary causes of the increase in drug-resistant bacteria.
- Misuse of antibiotics jeopardizes the usefulness of essential drugs. Decreasing inappropriate antibiotic use is the best way to control resistance.
- Children are of particular concern because they have the highest rates of antibiotic use. They also have the highest rate of infections caused by antibiotic-resistant pathogens.
- Parent pressure makes a difference. For pediatric care, a recent study showed that doctors prescribe antibiotics 65% of the time if they perceive parents expect them; and 12% of the time if they feel parents do not expect them.
- Antibiotic resistance can cause significant danger and suffering for people who have common infections that once were easily treatable with antibiotics. When antibiotics fail to work, the consequences are longer-lasting illnesses; more doctor visits or extended hospital stays; and the need for more expensive and toxic medications. Some resistant infections can cause death.

### **How You Can Help Prevent Antibiotic Resistance**

- Do not take an antibiotic for a viral infection like a cold, a cough or the flu.
- Take an antibiotic exactly as the doctor tells you. Do not skip doses. Complete the prescribed course of treatment, even if you are feeling better.
- Do not save any antibiotics for the next time you get sick. Discard any leftover medication once you have completed your prescribed course of treatment.
- Do not take antibiotics prescribed for someone else. The antibiotic may not be appropriate for your illness. Taking the wrong medicine may delay correct treatment and allow bacteria to multiply.
- Antibiotic prescriptions in outpatient settings can be reduced dramatically - without adversely affecting patient health - by not prescribing antibiotics for viral illnesses, such as colds, most sore throats, coughs, bronchitis, and the flu.
- Parents should not demand antibiotics when a healthcare provider has determined they are not needed.
- Parents should talk with their healthcare provider about antibiotic resistance.
- Parents should not give their children antibiotics for a viral infection like a cold, a cough, or the flu. Antibiotics should be used only to treat bacterial infections.
- Parents should ensure that their children take all medication as prescribed, even if symptoms disappear. If treatment stops too soon, some bacteria may survive and re-infect.

### **How Safe are Color Additives**

The Food and Drug Administration (FDA) has responded to consumer concerns with a new fact sheet entitled: *How Safe are Color Additives?* Following is a summary of that information.

**Color additives** give the red tint to your fruit punch and the green hue to your mint-flavored toothpaste. They are dyes, pigments, or other substances that can impart color when added or

applied to a food, drug, cosmetic, or the human body. They can be found in a range of consumer products—from cough syrup and eyeliner to contact lenses and cereal.

So how safe are they? "Color additives are very safe when used properly," says Linda Katz, M.D., M.P.H., Director of the Office of Cosmetics and Colors in FDA's Center for Food Safety and Applied Nutrition (CFSAN). "There is no such thing as absolute safety of any substance. In the case of a new color additive, FDA determines if there is 'a reasonable certainty of no harm' under the color additive's proposed conditions of use." Here are more facts you should know about color additive safety.

**FDA regulates color additives used in the United States.** This includes those used in food (and dietary supplements), drugs, cosmetics, and medical devices. These color additives (except coal-tar hair dyes) are subject by law to approval by the agency and must be used only in compliance with the approved uses, specifications, and restrictions. In the approval process, FDA evaluates safety data to ensure that a color additive is safe for its intended purposes. Color additives that FDA has found to cause cancer in animals or humans may not be used in FDA-regulated products marketed in the United States.

**Two main categories make up FDA's list of permitted color additives.** In addition to undergoing approval, some color additives are known as "certifiable." Certifiable color additives are man-made, derived primarily from petroleum and coal sources. The manufacturer submits a sample from the batch for which it is requesting certification, and FDA tests the sample to determine whether it meets the color additive's requirements for composition and purity. If it does, FDA "certifies" the batch and issues a certification lot number. Only then can that batch be used legally in FDA-regulated products.

Certified color additives have special names consisting of a prefix, such as FD&C, D&C, or Ext. D&C; a color; and a number. An example is FD&C Yellow No. 6, often found in cereals, ice cream, and baked goods. Sometimes a color additive is identified by a shortened form of its name, consisting of just the color and number, such as Yellow 6.

Other color additives, in the second main category, are "exempt" from batch certification. These are obtained largely from plant, animal, or mineral sources. Examples include caramel color and grape color extract. They are not subject to batch certification requirements, but they are still artificial color additives and must comply with regulatory requirements. Both types of color additives are subject to rigorous safety standards.

**Approval of a color additive for one intended use does not mean approval for other uses.** For example, no color additives have been approved for injection into the skin—even though tattoo parlors often claim that the pigments in their inks are "FDA-approved." Likewise, no color additives are approved for permanent makeup (a form of tattooing). And henna is approved for use on the hair, but not the skin.

**Reactions to color additives are rare.** It is possible, but rare, to have an allergic-type reaction to a color additive. For example, FD&C Yellow No. 5 may cause itching and hives in some people. This color additive is widely found in beverages, desserts, processed vegetables, drugs, makeup, and other products. FDA requires all products containing FD&C Yellow No. 5 to identify it on their labels so that consumers who are sensitive to the dye can avoid it. On medicine labels, this certified color additive is also identified by its uncertified name, "tartrazine."

**FDA can take action against companies if there are violations.** In the absence of a voluntary action such as a product recall, FDA can issue warning letters, detentions, and import alerts for products that are found to be unsafe or to contain color additives that are prohibited, misused, or not properly identified as ingredients. FDA can also seize such products. Color additive violations are a common reason for detaining imported cosmetic products that are offered for entry into the United States. Color additives in foods and cosmetics marketed abroad are not subject to the same safeguards as those marketed in the United States.

A glossy brochure of color additives can be found here:  
[www.fda.gov/consumer/updates/coloradditives121007.html](http://www.fda.gov/consumer/updates/coloradditives121007.html)

### **Food Safety and Health: Your Food Safety Source on the Web**

Remember that **Food Safety and Health** [www.foodsafety.wisc.edu](http://www.foodsafety.wisc.edu) should be your first stop on the web for food safety information. Make it one of your New Year's resolutions to try out the A-Z index for your next web inquiry. **And** be sure to update your county's web pages to link to this valuable resource for consumers in your county.

# **Happy New Year!**