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Food Safety for the Holiday Season[1]

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Food is always an important part of holiday festivities, but holiday meals can take a turn for the worse if food safety is not properly practiced when preparing and cooking the food. The food you serve your family and friends can be very harmful if your turkey, ham, or home-prepared meat products are not appropriately handled. The good news is that by practicing four basic food safety measures you can help prevent foodborne illness over the holiday season. This factsheet provides information about safe food practices for the holidays.

Why Is Holiday Food Safety Important?

Food is an important part of holiday celebrations, but cooking more food than you normally prepare can easily lead to a food safety incident. During the holiday season you have family and friends visiting and you need to cook much more food than you would normally prepare. Cooking larger batches of food often can result in undercooking. Food often is prepared ahead for gatherings, and such items need to be reheated or stored properly. You also may cook a variety of dishes at the same time for a holiday feast, and when things get complicated, errors can occur. Furthermore, big holiday meals can result in lots of leftovers, which can lead to food safety problems unless they are stored properly.

Social gatherings are another factor that affects holiday food safety. During the holiday season you share your holiday meals with family members and friends, which might include a group of people considered "at high risk": infants, young children, older adults, pregnant women, and people with weakened immune systems due to disease or medical treatment. When you share your food with more people, any contaminated food will affect more people, leading to a potential outbreak of foodborne illness.

Additionally, during the holiday season people send and receive many food gifts by mail. Since some of these items are perishable, you need to take care of them with good planning in order to avoid any foodborne illness.

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How Can We Prepare and Cook Holiday Meals Safely?

Whether you cook your daily meal for your family of four or you prepare a big holiday meal for a group of twenty, you can always ensure the safety of foods that you are cooking by following four simple golden rules: Clean, Separate, Cook, and Chill.

1. ***Clean***

You need to wash your hands and clean food contact surfaces before, during, and after cooking, and wash produce appropriately before consumption/preparation. First, wash your hands with warm water and soap for 20 seconds before and after handling any food. Keep in mind that hand sanitizer is not a replacement for washing hands with soap and water because it is not effective against certain pathogens, including most viruses. Second, sanitize food-contact surfaces, including cutting boards, dishes, utensils, and countertops, with hot, soapy water after preparing each food item. Rinse fruits and vegetables thoroughly under cool running water and use a produce brush to remove surface dirt, especially from fruits and vegetables with rough surfaces such as cantaloupe. Do not rinse raw meat and poultry before cooking in order to avoid spreading bacteria to areas around the sink and countertops.

2. ***Separate***

When you prepare meals or store food in the refrigerator, be sure to keep foods that will not be cooked (ready-to-eat foods) separate from items that can contaminate other foods, such as raw eggs, meat, poultry, or seafood. Be sure to use separate kitchen utensils for ready-to-eat foods and for your raw products. Also, consider using one cutting board only for foods that will be cooked such as raw meat, poultry, and seafood, and another one for those that will not (such as raw fruits and vegetables). Do not put cooked meat or other ready-to-eat food on an unwashed plate that has held any raw eggs, meat, poultry, seafood, or their juices.

3. ***Cook***

Cook meat and poultry to a safe minimum internal temperature (Table 1). Use a food thermometer to measure the internal temperature. Some traditional holiday foods present particular hazards. If chitterlings are on your menu, boil the chitterlings for 5 minutes *before* cleaning and preparing them. To ensure your turkey is cooked properly, insert a food thermometer into the innermost part of the thigh and wing and the thickest part of the breast. The turkey is safe when the temperature in all locations reaches 165°F. If the turkey is stuffed, the temperature of the stuffing should be 165°F.

Bring sauces, soups, and gravies to a rolling boil when reheating. A rolling boil is when a liquid is boiled rapidly with lots of bubbling. Cook eggs until the yolk and white are firm. When making your own eggnog or other recipe calling for raw eggs, such as custard or key lime pie, use pasteurized shell eggs, liquid or frozen pasteurized egg products, or powdered egg whites. Be sure that eggs and products containing eggs are thoroughly cooked when serving those at higher risk for foodborne illness. Do not eat uncooked cookie dough, since it may contain raw eggs.

4. ***Chill***

Refrigerate leftovers and any food product that is stored cold within two hours, because harmful bacteria grow rapidly at room temperature. Set your refrigerator at or below 40°F and the freezer at 0°F. Check both periodically with an appliance thermometer.

Thaw frozen food safely in the refrigerator, under cold running water, or in the microwave—but never at room temperature. If you thaw food in cold water or in the microwave, this food needs to be cooked immediately. When you thaw food, allow enough time to properly handle the food. For example, a 20-pound turkey needs four to five days to thaw completely in the refrigerator. Leftovers should be promptly refrigerated (within 2 hours) and used within three to four days. Some leftovers can be frozen; always remember to label and date the item before storage. Do not taste food that looks or smells questionable. **When in doubt, throw it out!**

What Is the Best Practice for the Safety of Mail-Order Food?

With convenience becoming more important in shopping, mail-order foods that are delivered to the home are gaining popularity as the ultimate time saver. However, ordering food through the mail may cause concerns about food safety. It is important to understand how food and packaging should look when your mail-order foods arrive. Keep in mind that mail-order foods must be handled carefully and in a timely manner to prevent foodborne illness. When you receive an item, make sure the company sends perishable items like meat or poultry cold or frozen and packed with a cold source such as dry ice or an ice pack. Items should be packed in foam or heavy corrugated cardboard. The

food should be delivered as quickly as possible, ideally overnight. The outer package of the perishable items should be labeled "Keep Refrigerated" to alert the recipient. When you receive a food item marked "Keep Refrigerated," open it immediately and check its temperature. The food should arrive frozen or partially frozen, with ice crystals still visible or at least refrigerator cold (below 40°F as measured with a food thermometer). Even if a product is smoked, cured, vacuum-packed, or fully cooked, it still is a perishable product and must be kept cold. If perishable food arrives warm (above 40°F as measured with a food thermometer), notify the company. Do not consume the suspect food.

If you send a food gift to someone, tell the recipient a delivery date if the company has promised one or forward the package tracking information. If none of those are available, alert the recipient that "the gift is in the mail" so someone can be there to receive it. Do not have a perishable item delivered to an office, since it could get delivered after the recipient leaves or refrigerator space for keeping it cold might not be available.

When you mail homemade food, make sure perishable foods are not held at temperatures between 40 and 140°F, the so called "Danger Zone*," for longer than two hours. Pathogenic bacteria can grow rapidly in the "Danger Zone," but they may not affect the taste, smell, or appearance of a food. In other words, you cannot tell that a food has been mishandled or is unsafe to eat. Make sure your perishable items are packed properly by creating "miniature deep-freezing packaging" using dry ice and reusable insulated coolers (Figure 1).

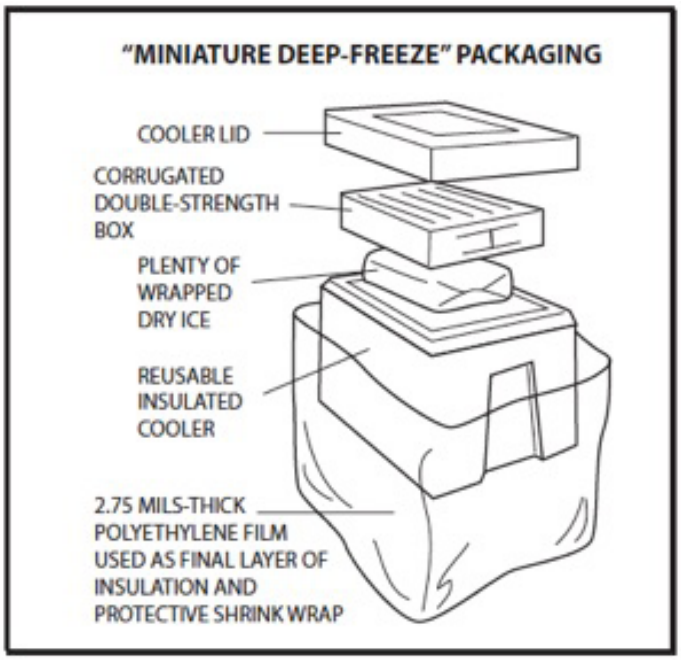

Figure 1. "Miniature deep-freeze" packaging (http://www.fsis.usda.gov/wps/portal/fsis/topics/food-safety-education/get-answers/food-safety-fact-sheets/safe-food-handling/mail-order-food-safety/)

How Should I Cook Turkey Safely for the Holiday Season?

Holidays would not be perfect without a big oven-roasted turkey. However, to cook a turkey safely you need to make a good plan, from thawing to roasting.

1. ***Thawing***

Turkey must be kept at a safe temperature during "the big thaw." While frozen, a turkey is safe for a long time (it can be stored for up to a year without affecting quality or safety). However, as soon as it begins to thaw, any bacteria that may have been present before freezing can begin to grow again. A package of frozen meat or poultry left thawing on the counter more than 2 hours is not at a safe temperature. Even though the center of the package may still be frozen, the outer layer of the food is in the "Danger Zone" between 40 and 140°F, which is a temperature zone where foodborne bacteria multiply rapidly. There are three safe ways to thaw food: in the refrigerator, in cold water, and in a microwave oven.

When thawing a turkey in the refrigerator, you need to plan ahead. Allow approximately 24 hours for each 4–5 pounds in a refrigerator set at 40°F or below (Table 2). Place the turkey in a container to prevent the juices from dripping on other foods. A completely thawed turkey can remain in the refrigerator for 1–2 days before cooking.

When thawing a turkey in cold water, allow about 30 minutes per pound (Table 2). First be sure the turkey is in a leak-proof plastic bag to prevent cross-contamination and to prevent the turkey from absorbing water, resulting in a watery product. Submerge the wrapped turkey in cold tap water. Change the water every 30 minutes until the turkey is thawed. Cook the turkey immediately after it is thawed.

To thaw a turkey in a microwave oven, follow the oven manufacturer's instruction (MDH 2011). Plan to cook it immediately after thawing because some areas of the food may become warm and begin to cook during microwaving. Keeping partially cooked food is not recommended because any bacteria that have not been destroyed can grow rapidly in the food.

*While the USDA still defines the temperature "Danger Zone" as 40°F to 140°F (USDA 2011), the FDA Food Code defines the "Danger Zone" as 41°F to 135°F (FDA 2013).

2. ***Stuffing***

For optimal safety and uniform doneness, cook stuffing separately. However, if you are cooking a stuffed turkey it is essential to use a food thermometer to make sure the center of the stuffing reaches a safe minimum internal temperature of 165°F. Cooking a home-stuffed turkey is riskier than cooking one not stuffed. Even if the turkey itself has reached the safe minimum internal temperature of 165°F, the stuffing may not have reached a temperature high enough to destroy bacteria that may be present. Bacteria can survive in stuffing that has not reached 165°F, possibly resulting in foodborne illness.

If you plan to prepare stuffing using raw meat, poultry, or shellfish, you should cook these ingredients before stuffing the turkey to reduce the risk of foodborne illness from bacteria that may be found in raw ingredients. The wet ingredients for stuffing can be prepared ahead of time and refrigerated. However, do not mix wet and dry ingredients until just before spooning the stuffing mixture into the turkey cavity. Stuff the turkey loosely (about 3/4 cup of stuffing per pound). The stuffing should be moist, not dry, because moist heat destroys bacteria more rapidly. Immediately place the stuffed, raw turkey in an oven set no lower than 325°F.

Some traditionalists will stand firm on cooking stuffing in the turkey. One compromise is to stuff your bird as described above, then once your turkey is finished cooking, remove the stuffing, place it in a separate baking pan, and while your turkey is resting prior to carving, heat your stuffing in a 350°F oven until it reaches the 165°F temperature needed to ensure safety.

3. ***Roasting***

Set the oven temperature no lower than 325°F. Table 3 shows roasting times of stuffed or unstuffed turkeys based on their size. Before roasting, make sure the turkey is completely thawed. Times are based on fresh or thawed birds at a refrigerator temperature of 40°F or below. Place turkey breast-side up on a flat wire rack in a shallow roasting pan 2 to 2 1/2 inches deep. You can optionally add one-half cup water to the bottom of the pan.

A tent of aluminum foil may be placed loosely over the breast of the turkey for the first 1 to 1 1/2 hours and then removed for browning. A tent of foil may be placed over the turkey after the turkey has reached the desired golden brown color. The temperature of the turkey and the center of the stuffing must reach a safe minimum internal temperature of 165°F as measured with a food thermometer. Do not remove the stuffing from the turkey before it reaches 165°F because the undercooked stuffing could contaminate the cooked meat. Refrigerate cooked poultry and stuffing within 2 hours. Leftovers should be reheated to a safe minimum internal temperature of 165°F and used within 3 to 4 days.

How Should I Make Eggnog Safely?

Homemade eggnog often is consumed during the holiday season. This creamy drink may cause *Salmonella* infection if raw or undercooked eggs are used. To prevent this holiday drink from causing any harmful infection, it is important to follow safe food handling practices.

Eggs are one of the main ingredients in most eggnog recipes, giving the beverage its characteristic frothy texture. The FDA advises consumers to start with a cooked egg base for homemade eggnog, ice cream, or mayonnaise. To make a cooked egg base, combine eggs and half of the milk as indicated in the recipe and cook the mixture to an internal temperature of 160°F with constant stirring. The cooking will destroy *Salmonella* and other pathogens. After cooking, chill the mixture before adding the rest of the milk and other ingredients. You can also use egg-substitute products or pasteurized eggs in your eggnog, or you can find a recipe without eggs.

References

FDA. 2013. *Food Code 2013*. 3-501. 16. Time/temperature control for safety food, hot and cold holding. http://www.fda.gov/downloads/Food/GuidanceRegulation/RetailFoodProtection/FoodCode/UCM374510.pdf

Minnesota Department of Health (MDH). 2011. "Turkey: Safe thawing and cooking." http://www.health.state.mn.us/foodsafety/foods/turkey.html.

USDA. 2011 "'Danger Zone' (40°F—140°F)." http://www.fsis.usda.gov/shared/PDF/Danger_Zone.pdf.

Resources

USDA and Department of Health and Human Services (HHS): Holiday food safety tips. http://www.foodsafety.gov/keep/events/holidays/check_steps.pdf.

USDA FSIS: Food safety for those glorious holiday goodies. http://www.fsis.usda.gov/Oa/pubs/holiday_goodies1.pdf?redirecthttp=true.

FDA: Holiday food safety. http://www.fda.gov/Food/ResourcesForYou/Consumers/ucm188807.htm.

USDA: Mail order food safety. http://www.fsis.usda.gov/wps/portal/fsis/topics/food-safety-education/get-answers/food-safety-fact-sheets/safe-food-handling/mail-order-food-safety/.

Utah University Extension: Safe eggnog requires pasteurized eggs. http://extension.usu.edu/files/publications/newsletter/No__004.pdf .

University of Minnesota Extension: Egg Nog. http://www.extension.umn.edu/food/food-safety/preserving/eggs-dairy/egg-nog/.

Holiday food safety—Preparing the turkey. https://www.youtube.com/watch?v=t9Z6QU51t_Y.

Table 1. Safe Minimum Internal Temperatures*

All poultry, stuffing, casseroles, leftovers	165°F
Ground meats, eggs, and egg dishes	160°F
Beef, pork, lamb, and veal (steaks, roasts, and chops) Fresh or smoked ham (uncooked) Fish and shellfish	145°F
Fully cooked ham (to reheat) **	140°F
Reheating	165°F
*Modified from Safe Minimum Internal Temperature Chart (http://www.fsis.usda.gov/wps/wcm/connect/625d9435-4f14-46fe-b207-5d6688cb4db5/Safe_Miminum_Internal_Temperature_Chart.pdf?MOD=AJPERES) **Hams that are packaged in USDA-inspected plants.	

Table 2. Time Needed to Thaw Turkey.

Turkey Size	Refrigerator (Approximately 24 hrs for every 4–5 lbs)	Cold Water (Approximately 30 min per lb)
4 to 12 pounds	1 to 3 days	2 to 6 hours
12 to 16 pounds	3 to 4 days	6 to 8 hours
16 to 20 pounds	4 to 5 days	8 to 10 hours
20 to 24 pounds	5 to 6 days	10 to 12 hours
*Modified from Turkey Thawing Chart (http://www.foodsafety.gov/keep/charts/turkeythawingchart.html)		

Table 3. Roasting Time to Safely Cook Turkey.

Turkey Size	Unstuffed	Stuffed
4 to 6 pounds (breast)	1½ to 2¼ hours	Not usually applicable
6 to 8 pounds (breast)	2¼ to 3¼ hours	2½ to 3½ hours
8 to 12 pounds	2 ¾ to 3 hours	3 to 3½ hours
12 to 14 pounds	3 to 3¾ hours	3½ to 4 hours
14 to 18 pounds	3¾ to 4¼ hours	4 to 4¼ hours
18 to 20 pounds	4¼ to 4½ hours	4¼ to 4¾ hours
20 to 24 pounds	4½ to 5 hours	4¾ to 5¼ hours
*Modified from Turkey Roasting Chart (http://www.foodsafety.gov/keep/charts/turkeyroastingchart.html)		