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Food Science and Technology Notes

Extension Division Department of Food Science and Technology Virginia Polytechnic Institute Blacksburg, Virginia

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BACTERIAL FOOD POISONING

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Bacterial food poisoning can be divided into two types:

Food-borne infection. Specific bacteria are present in the food. After you eat the food, the bacteria grow in your intestines and bring about illness. Only a few bacteria are necessary to establish the infection.

Food intoxication. Specific bacteria grow in the food and produce a toxin or poison. When you eat the food, this poison causes illness.

I. Type of Bacteria: Salmonella Species

Sources: Poultry, eggs, pork, processed meats, feces, and dirt.

General Problem: This is a food-borne infection. After growing in the intestinal tract, the Salmonella cells break apart and a poison is released. The poison causes the illness.

Symptoms: Severe abdominal pain, diarrhea, prostration, chills, fever, and vomiting occur within 7 to 72 hours.

Prevention: Good sanitation practices are essential. Keep bacteria out of food.

Foods Commonly Involved: Any egg-based food, eggs (particularly duck and turkey eggs), poultry, pork, processed meats, creme desserts and fillings, salads (potato, chicken, etc.), sandwich fillings, and milk products.

II. Type of Bacteria: Staphylococcus aureus

Sources: Ubiquitous (present everywhere) but mainly skin, nose, throat, pimples, boils, carbuncles, and acne.

General Problem: This type of bacteria causes food intoxication. While growing in the food, these bacteria produce a toxin or poison. When the poison is eaten with the food, illness results.

Symptoms: Vomiting, diarrhea, prostration, and abdominal cramps occur within 2 to 4 hours.

Prevention: Good sanitation practices and proper temperature control are important. To prevent bacterial growth, keep hot foods hot, above 130°F., and cold foods cold, below 50°F.

Foods Commonly Involved: Ham, poultry, processed meats, salads potato, chicken, tuna, etc.), sandwich fillings, beans, creme fillings and desserts, custards, and milk products.

III. Type of Bacteria: Clostridium botulinum

Sources: Soil, dirt, and unclean conditions.

General Problem: C. botulinum poisoning (botulism) is generally a problem with canned foods and processed meats and fish. When C. botulinum grows under anaerobic conditions (without oxygen or air as in canned foods), they produce a poison. This poison usually causes death when eaten with the food.

Symptoms: Vomiting, diarrhea, visual disturbances, inability to swallow, speech difficulty, and labored breathing begin 18 to 96 hours after intake of infected food. Fatality rate is high.

Prevention: Use proper canning procedures to assure complete destruction of C. botulinum. Boil all suspected canned foods to destroy poison. Heat all suspected processed fish or meat products to 180°F. for 30 minutes.

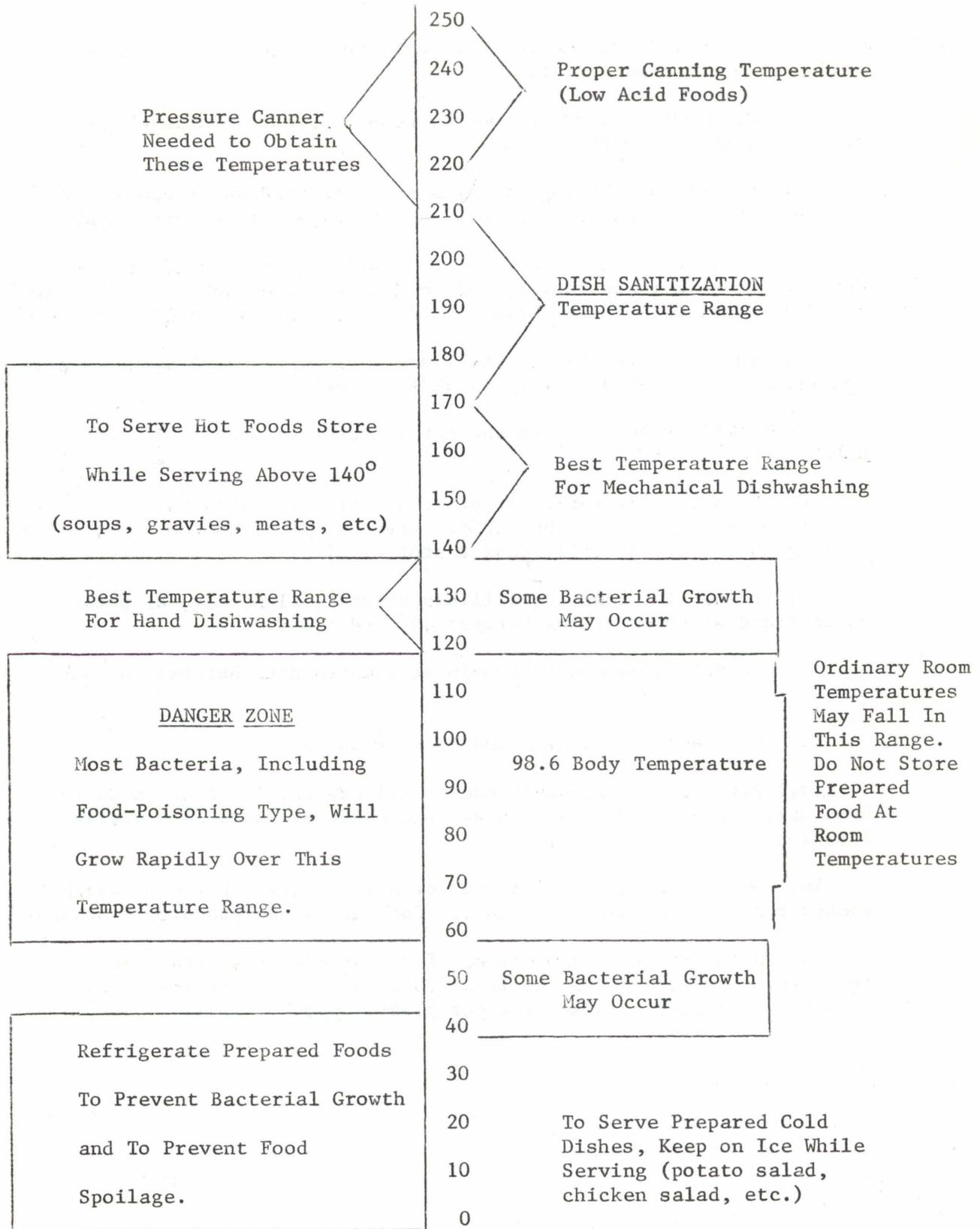
Foods Commonly Involved: Processed or smoked meats and fish and canned, low acid foods such as string beans, corn, beets, peas, meats, and olives.

To help prevent ALL types of food poisoning:

1. Work with clean hands. Wash hands thoroughly after going to the toilet, smoking, or blowing your nose.

2. Thoroughly clean all pots, cutting boards, etc. used for handling raw foods before using them for cooked foods. This procedure prevents cross-contamination between raw and cooked foods.

3. Never work around food if you have any infection such as a boil, acne, cut, cold, or flu.
4. Keep hands away from mouth, nose, and hair. Always cover coughs and sneezes with tissues.
5. Do not use cooking utensils to taste food while cooking or serving. Do not lick your fingers or eat while working with food.
6. Refrigerate all foods promptly after a meal or after cooking. Chill perishable foods rapidly and hold at 40°F. or below. To assure rapid cooling, spread out large quantities of food in shallow pans.
7. When freezing foods, chill or freeze them so that the center temperature is reduced rapidly to 40°F. or below.
8. Thaw frozen foods in the refrigerator or under cold running water.
8. Do not allow turkey or other poultry dressings to stay at temperatures between 40° and 120°F. Never stuff birds the night before cooking and never partially cook a stuffed bird.
10. Do not let sandwich fillings of meat, fish, egg, or potato salad stand at temperatures between 40° and 120°F.
11. Do not allow ham to remain at temperatures between 40° and 120°F.
12. Use pasteurized milk and milk products.
13. Process in a pressure cooker all canned, low acid foods for home use. Never serve home-canned vegetables or meats at a public function.
14. Do not use dirty, cracked, or soiled eggs in raw or slightly cooked egg products such as eggnog. Cook dried egg products thoroughly.
15. When preparing home-smoked fish, be sure fish stays at a temperature of 180° F. for at least 30 minutes. Do not refrigerate smoked fish products in an airtight plastic pouch.



Store Frozen Foods At This Temperature Or Below.
Thaw Rapidly Or Cook From Frozen Condition When Ready To Use.