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EC70-950 Food Safety

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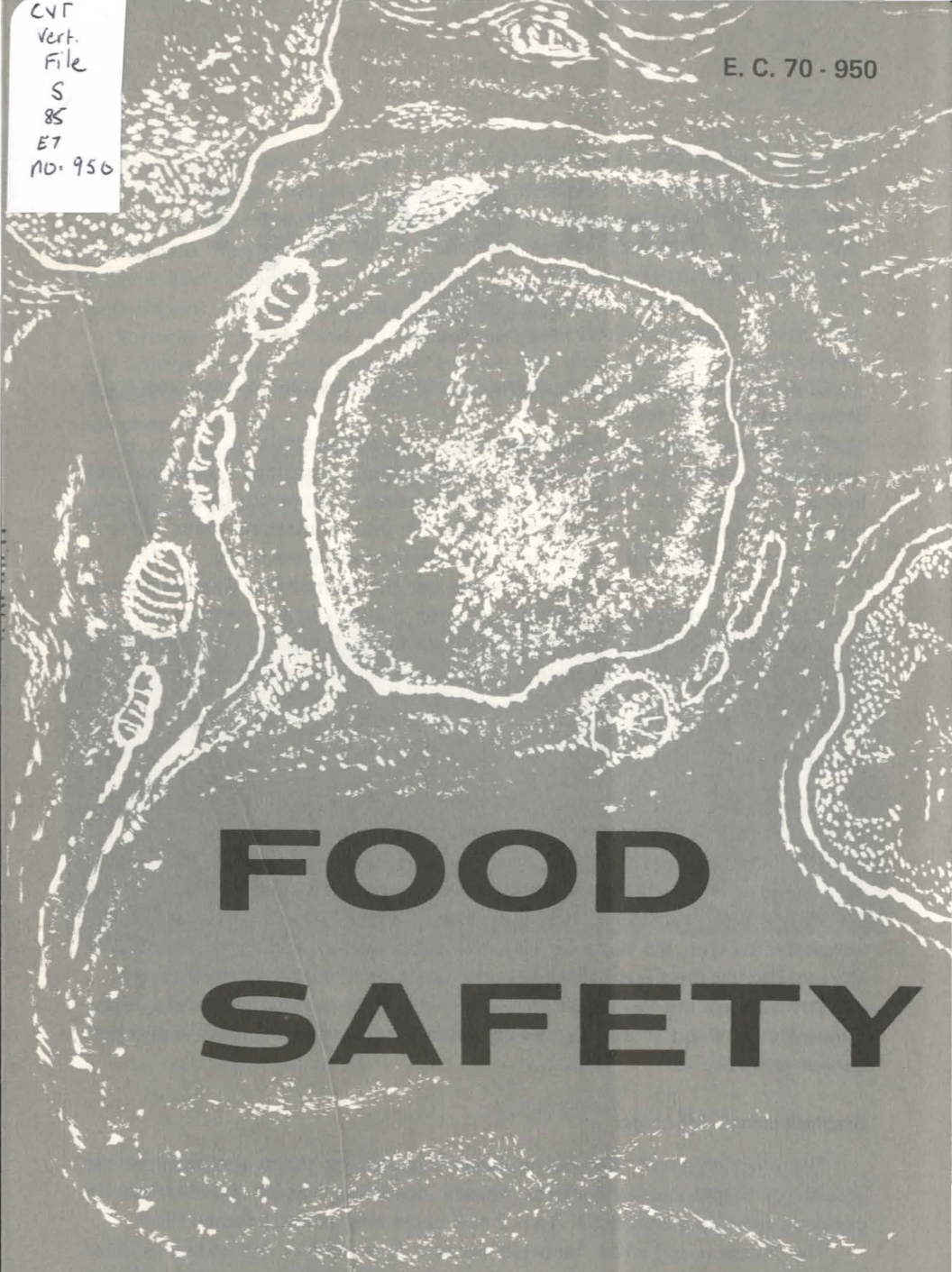

FOOD SAFETY

EXTENSION SERVICE
UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE
COOPERATING WITH THE U.S. DEPARTMENT OF AGRICULTURE
AND THE COLLEGE OF HOME ECONOMICS.
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Food Safety!

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Close to one million people in the United States become ill each year from eating contaminated foods.

The illness comes from foods that contain harmful bacteria.

Bacteria are everywhere. Lack of sanitation, insufficient cooking and improper storage allow bacteria in foods to increase to dangerous levels. You can protect yourself from food-borne illness if you understand how bacteria contaminate foods and if you know how to prepare and store foods.

Bacteria responsible for most illnesses are the Salmonella, Staphylococcus and Clostridium organisms. The first organism makes you ill when you eat food containing large amounts of it. The last two produce toxins which cause the illness. Any of these become serious problems with babies, and with the sick and elderly.

Salmonellosis

This illness occurs from 12 to 24 hours after infected food has been eaten. Symptoms include nausea, vomiting, stomach cramps and diarrhea.

The Salmonellae bacteria live and grow in the intestinal tract and spread easily. The number of bacteria present determines whether or not illness occurs.

Meat, meat products and any foods exposed to animals are easily contaminated with the bacteria. This may occur during production, handling or storage. Usually there is no abnormal odor or flavor to indicate their presence.

The bacteria are destroyed by heat, and growth is retarded at refrigerator temperatures. Food should be stored where rats, mice, flies, roaches and pets cannot get at it.

Staphylococcal Poisoning

The most common food-borne illness is caused by toxins produced by the growth of Staphlococcus bacteria. Nausea, vomiting, cramps and diarrhea are common symptoms that occur from 2 to 6 hours after eating infected food.

The illness is not often reported because it is mild or attributed to other causes. Large groups at picnics, banquets or in dormitories may be involved. Recovery is usually rapid.

Staphylococcus bacteria are everywhere, in water or sewage, in the respiratory tract, and on the skin from boils, infected cuts or sinuses. The toxins develop in mixtures of all kinds, in cream fillings, potato salad and casserole dishes.

The toxin is not destroyed by heat, so cleanliness in handling food is necessary. The best control of bacterial growth is adequate refrigeration. Thorough cooking and prompt cooling of foods will help prevent development of the toxin.

Botulism

Spores from the organism Clostridium botulinum produce the toxin which causes botulism. Within 12 to 24 hours after eating infected food the toxin affects the nervous system, causing double vision, difficulty in swallowing, loss of speech and paralysis of the respiratory muscles. Death occurs in three to six days in over 65 percent of the cases.

The organism is found in the soil. It is unusually resistant to heat. If heat treatment during home canning is not adequate, spores will survive and grow.

Proper methods should be used to can foods in the home. Because spores are more easily destroyed in an acid medium, fruits and tomatoes may be canned by the water-bath method. Meats and non-acid vegetables such as corn, beans, peas and asparagus must be processed in the pressure canner so that a temperature above boiling is reached.

Home canned vegetables and meats should be boiled for 10 to 20 minutes before tasting. This will destroy any toxin that is present and will make the food safe for eating. Spoiled food should be burned or buried so that it will not be eaten by humans or animals. Commercially canned foods are safe because they are required to be sterilized at high temperature under pressure.

Perfringens Poisoning

The spores from Clostridium perfringens form toxins responsible for this ailment. Nausea, cramps, headache and diarrhea occur from 8 to 16 hours after eating infected foods. Symptoms are usually mild and leave within 24 hours.

The bacteria was first reported in 1959, but is believed to be implicated in many disease outbreaks. It is found in soil, water and refuse. The spores are resistant to ordinary cooking, drying, freezing and curing.

Meats are most often infected. Chops, stew meats, ground meats and gravy are common sources of infection. The bacteria will be killed if meat is cooked to a temperature above 140 degrees. Meats that are reheated should be heated quickly above this temperature. Left-overs should be cooled quickly to below 40 degrees.

Growth of Bacteria

Bacteria need food, warmth and moisture to grow. If just one of these is missing, growth will be retarded.

Bacteria grow at temperatures from 55 to 120 degrees. Ordinary room temperature falls within this range. Foods left at room temperature allow bacteria to multiply rapidly. Quick heating and cooling shorten the time when temperature is favorable for growth.

Refrigeration and freezing retard growth of bacteria, but do not destroy them. As soon as food is placed in a more favorable temperature, growth recurs. Temperatures above 140 degrees will kill the bacteria but not the spores.

Controls

Cooking is one way to control growth although it does not kill all harmful bacteria. United States Public Health Service recommends 165 degrees for holding hot foods in order to provide a margin of safety (Figure 1). A temperature above boiling (212°F) is needed to kill spores.

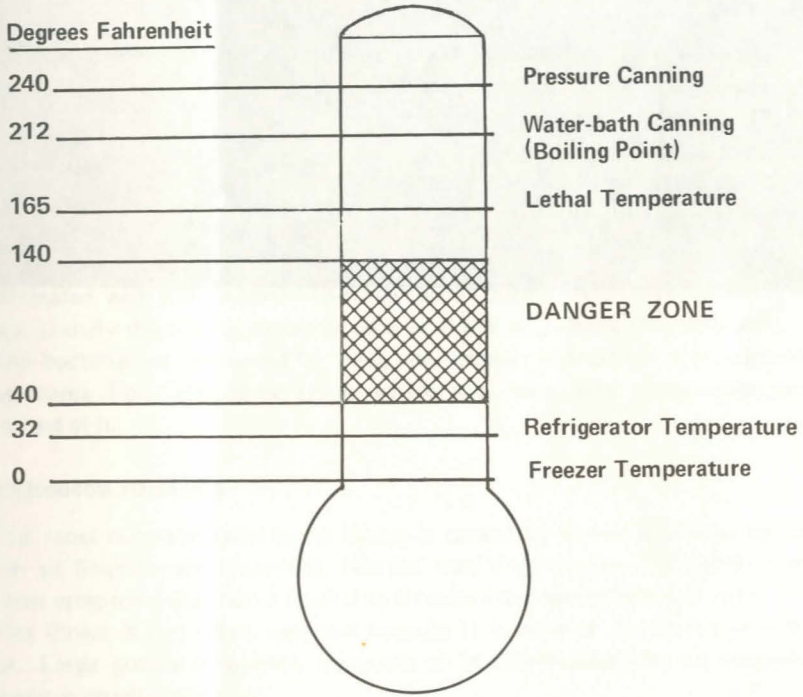

Figure 1

Adequate refrigeration is an important factor in retarding bacteria growth. Growth is retarded below 40 degrees and stopped at freezing temperatures. Drying and certain chemicals, such as salt, sugar and acid will also stop growth.

Personal hygiene and good work habits are important in preventing contamination. Hands must be washed with soap and water before handling food. Spoons, forks and tongs should be used instead of fingers.

Surfaces on which food is placed should be scrupulously clean. Grease, dust and crumbs collect in cracks and corners and allow bacteria to grow. Dirty surfaces attract insects and rodents which carry food spoilage organisms from one place to another.

Proper washing and sterilizing of dishes prevent the spread of organisms. Use hot sudsy water for washing dishes and work surfaces. Rinse with very hot water and allow to air dry.

Summary

You can keep foods safe for eating by observing the following guidelines:
Use sanitary food-handling practices.
Hold foods hot or cold.
Cool foods quickly.
Keep pets, flies and insects away from food.
When in doubt, throw it out.