

Food Safety

Insights & Information on safe food practices for
hunger relief agencies in Washington State



Overview of Washington Food Coalition

Our Mission

The Washington Food Coalition actively educates and networks with organizations that strive to alleviate hunger throughout Washington

Our Vision

The Washington Food Coalition is the unified voice for a strong emergency food system

History

The Washington Food Coalition is a non-profit network of food banks, food pantries, food distribution centers, hot meal and food voucher programs throughout the state of Washington. Incorporated in 1992, the WFC is the result of a merger between the Western Washington Food Coalition and Eastern Washington's Northwest Regional Food Network. Members of these independently incorporated organizations envisioned a comprehensive and cohesive statewide network. Their goal was to work cooperatively to alleviate hunger and provide a unified voice for hunger programs. The WFC currently has a diverse membership of more than 300 independently incorporated agencies.

Food Safety: Insights and information on safe food practices for hunger relief agencies

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Our History

Honoring those who have fought hunger in Washington for decades....

We not only strive to highlight the current innovations and solutions in hunger relief agencies, but we also honor those that have done the hard work of building a foundation for a strong emergency food system.

In the early 1970's, several factors including the 'Boeing bust' and a nationwide energy crisis caused a hard-hitting recession throughout Washington. Families who had previously been self-sufficient were left without employment and without food on their shelves. In 1972, concerned neighbors in Washington began to grow discontent when seeing others in their community face hunger. Slowly but surely, groups rallied together in pockets of the state to set up local food programs. Some had begun organizing before this, and some would soon come after, but 1972 marks a year of remarkable activity in the formation of early food program networks around the state. Organizations that began in 1972 include Puyallup Food Bank, Thurston County Food Bank, Bellingham Food Bank, and 2nd Harvest Inland Northwest.

The Washington State Legislature took a major step to fight hunger in 1985 when they formed the Emergency Food Assistance Program (EFAP) to provide funds to the developing food program system. In 1992, this program expanded to also support the Tribal Voucher Food Program.

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Since then, our work has been anything but light or easy. Varying economic times provide fluctuation in the strain our members face, but there has never been a season when they are not greatly needed. Our work is not confined to the traditional food bank, but we also represent all meal programs, distribution programs, and anyone fighting hunger in Washington.

Enough cannot be said about the grueling work that was done by those who formed a statewide emergency food system, when nothing of the sort existed a few short decades ago. Washington Food Coalition is proud to continue the hard work of building on what they have accomplished.

The situations, interests, and needs of our agencies are diverse. However, we find complete unity in the belief that no one in Washington State should go hungry and we share in the vision of a strong emergency food system.

For those of us who now carry the work of feeding our hungry neighbors, and those who will soon join our work, we press on with optimism and the fortitude to continue until no one in Washington goes hungry any more.

...we continue the work of building a strong emergency food system.

Table of Contents

Section 1: Food Programs and Food-Borne Illness 1

This Section will introduce the value of understanding food safety and information on illnesses resulting from food-borne illness.

Why study food safety?	1
What is food-borne illness?.....	2
What causes food-borne illness?	2
What types of food- borne illness and food poisoning could be found in food programs?.....	2
<i>Infectious Hepatitis</i>	2
<i>Norwalk Virus</i>	3
<i>Botulism</i>	3
<i>Bacillus Cereus</i>	3
<i>Trichinosis</i>	3
<i>Staphylococcal Intoxication</i>	3
<i>Salmonellosis</i>	4
<i>Campylobacteriosis</i>	4
<i>Listeriosis</i>	4
<i>Yersiniosis</i>	4
<i>Shigellosis (Bacillary Dysentery)</i>	4
<i>Hemorrhagic Colitis</i>	5
<i>Chemical Food Poisoning</i>	5
<i>Naturally Occurring Food Poisoning</i>	5
How do we control bacterial growth?.....	6
Self Test	8

Section 2: Sanitary Surroundings - Setting Up for Safe Food..... 9

This Section will explain how to set up a safe building, storage and work areas. It will also cover pest control.

Are safe facilities important?	9
<i>Building and grounds</i>	9
<i>Water and sewer</i>	9
<i>Cleaning equipment organization</i>	10
<i>Floors, walls and ceilings</i>	10
<i>The Standard: (Easily cleanable, Non-absorbent, Durable, Smooth)</i>	10
<i>Ventilation</i>	10
<i>Lighting</i>	11
<i>Work space organization</i>	11
<i>Storage facilities</i>	11
<i>Storage plan</i>	12
Equipment	12
<i>Dishwashing process</i>	14
<i>Handwashing facilities</i>	14
Bathrooms	14
Cleaning methods	14
<i>Sanitizers</i>	15
<i>Cleaning Frequency</i>	15
Pest control	16
Self Test	17

Section 3: Risk Management18

This Section will discuss how to decide whether a donated food item is safe to distribute & how long food items may be safely stored.

Is risk management necessary?	18
General principles	18
Assessment process.....	18
It's all on the label.....	19
Evaluating cans	20
Evaluating bottles and jars.....	21
Evaluating cardboard or paper packages.....	21
<i>Single layer packages</i>	21
<i>Boxes with an inner bag</i>	21
<i>All packages</i>	21
Evaluating frozen and refrigerated food containers.....	21
Risk Assessment Exercise	22
Storage times, general information.....	22
Shelf storage guide for dry or canned foods.....	23
Refrigerator/freezer storage guide.....	27
Self Test	31

Section 4: Safe Food Handling 32

This Section will define safe food handling, storage and personal hygiene techniques.

What is safe food handling?.....	32
Personnel practices	33
<i>Worker storage and break areas</i>	33
<i>Personal hygiene</i>	33
<i>Handwashing</i>	33
<i>Worker habits</i>	34
Exercise: Floor plan	34
Safe food handling	35
<i>Temperature control</i>	35
<i>Calculating time out-of-temperature</i>	36
<i>Dry storage</i>	36
<i>Preventing cross-contamination</i>	37
<i>Food preparation</i>	37
Planning safe food.....	37
Self Test	39

Section 5: Re-Packaging Bulk Foods..... 40

This Section will explain how to safely re-package bulk foods and it will also introduce the HACCP system of safe food management.

Is repackaging a significant risk?	40
Repackaging environment and equipment.....	40
<i>Containers</i>	40
<i>Handling</i>	41
<i>Labeling</i>	41
Self-Test	42
Using HACCP to ensure food safety.....	43

Section 1: Food Programs and Food-Borne Illness

Why study food safety?

“...our food fills an important need in our community...that’s all we need to know.”

Actually, that isn’t all you need to know. There are many reasons food programs should be concerned about food safety.



- ◆ Providing safe food is as important as providing the food itself.

A hungry person is more likely to consume food they wouldn’t normally choose. If this food is unsafe, it can cause food-borne illness. Food-borne illness affects 48 million Americans per year. It can lead to serious discomfort, life-threatening complications, and even death.

- ◆ Unsafe food could injure the food program and its donors.

The Good Samaritan Law, which protect food donors and emergency food programs, does not excuse ignorance of food safety practices, especially if that ignorance results in personal harm. For further information, review the WFC handout on the legal analysis of the Good Samaritan Act. One publicized food-borne illness could result in loss of donations and community support.

Helping people in need is what food programs are all about. Ironically, those people who are most in need may be the most affected by careless handling of food. Food-borne illnesses can be deadly for people whose health is already at risk.

- ...► **Malnourished people** (with long-term poor nutrition) are at greater risk of food-borne illness because of damaged immune systems.
- ...► **Young children** are at higher risk because their immune systems are not yet fully developed.
- ...► **Pregnant women** may pass any food-borne disease they encounter to the fetus. In some cases this can cause miscarriage or stillbirth.
- ...► **Senior adults** may be at risk because of weakened immune systems, malnutrition, less ability to smell or see food spoilage, physical changes such as reduced stomach acid, poor circulation and weakened kidneys make food-borne illnesses harder to fight.
- ...► **Chronically ill people** with immune deficiencies due to cancer, AIDS, kidney or liver disease, diabetes, or similar disorders are often difficult to treat for the symptoms of food-borne illness (vomiting, diarrhea, dehydration, etc.). As a result, their systems are weakened, hastening the progress of their disease or leading to death.
- ...► **All at-risk people** who encounter food-borne illness may contract complications such as reactive arthritis, kidney failure, nervous system damage, progressive joint and spine disease, meningitis, and other chronic or life-threatening diseases.

“...no one has ever complained about becoming sick from our food. We don’t have contamination problems.”

Again, people with health problems or chronic illness due to malnutrition are likely to think of the symptoms of food-borne illness as a part of everyday life. They are not likely to associate these symptoms with food, and are even less likely to follow through and report a suspected problem.

Bacteria, one of the most common causes of food-borne illness, are found everywhere. It would be difficult, if not impossible, to find food that did not contain some bacteria. Any institution that deals with food has the potential for contamination. Bacteria only become a problem, however, when they multiply to sufficient numbers to cause an illness (the exception being virulent bacteria such as E. coli, which can cause serious illness even in a low dose). The best way to avoid the dangers of food-borne illness is to handle food safely in order to minimize the chance that bacteria will multiply. This manual is designed to help you avoid food-borne illnesses in your food program.

What is food-borne illness?

Food-borne illness is any disease caused by a micro-organism or foreign substance in food. Food-borne illness normally produces flu-like symptoms lasting a few hours (Staphylococcal intoxication) to a few months or years (Botulism).

This Section describes the micro-organisms that cause food-borne illness. Micro-organisms produce food-borne illness either by causing infections or intoxications.

Infections happen when enough live micro-organisms have reproduced in food or have been transferred from food to the intestines where they have produced an “infective dose” (the dose at which a person becomes ill). The severity of infection is decided by:

- ♦ the number and virulence (strength) of the micro-organism,
and
- ♦ the resistance of the victim.

Intoxications are caused by a toxin (poison) that is produced by bacterial cells. The amount of toxin is determined by the number of bacteria. Cooking or reheating food may or may not kill harmful micro-organisms or toxins. Some spore-forming organisms as well as some toxins are heat stable.

The human body can (and does every day) handle small numbers of most micro-organisms.

What causes food-borne illness?

Food-borne illness may be caused by micro-organisms (organisms too small to see) or by chemical or physical contamination of food (such as pesticides or glass chips). Contamination will be covered later in this Section.

There are four general types of micro-organisms which cause food-borne illness.

1. **Bacteria** are single-celled organisms which may live in animals, water, soil or food. Toxins are generally more heat resistant than the bacteria themselves.
Bacteria are small: you could fit more than 100 million bacteria on a single grain of sugar.
2. **Viruses** are even smaller than bacteria, and can only reproduce once they are inside a living cell (like a human).
Viruses are often found in untreated water and on the unclean hands of food service workers.
3. **Molds** can live in soil, water, plants or animals. They grow by absorbing organic material from their host.
4. **Parasites** live inside animal and human hosts and absorb nutrients to complete their life cycle. Parasites are most often found in meat and fish products, however they can also be found in fruits and vegetables exposed to contaminated water.

Each type of micro-organism operates differently within a human host. In order to simplify things, the rest of this Section will deal mostly with bacterial growth. Keep in mind, however, that the same methods for controlling food-borne illnesses caused by bacteria will also apply to illnesses caused by other micro-organisms.

What types of food-borne illness and food poisoning could be found in food programs?

Food programs handle a variety of food: from dry goods and vegetables to milk, meats, frozen products and prepared restaurant or deli food. Illnesses associated with these foods are explained on the following pages.

This information may change your ideas about food-borne illness. For example, not all food-borne illnesses show up immediately. Hepatitis may take up to 50 days. And not all food-borne illnesses produce only flu-like symptoms. Food-borne illness can produce a range of different symptoms. Some food-borne illnesses can kill!

Infectious Hepatitis

- ♦ Organism: Hepatitis A virus
- ♦ Source: Infected workers (human feces, urine or blood), contaminated water, insects, rodents.
- ♦ Common Foods: Foods not cooked after handling such as baked products, luncheon meats, salads, raw vegetables, sandwiches, fruits.

- ♦ Symptoms: Fever, appetite loss, nausea, fatigue, jaundice, darkened urine, enlarged liver.
- ♦ Prevention: Good worker hygiene, minimized contact of hands with food, separation of infected persons from food preparation, proper sewage treatment, thorough hand washing –especially after using the toilet, bare hand contact with foods, and restricting any food handlers from working if they have any symptoms of hepatitis A or if they have been exposed to someone who has the disease.
- ♦ Note: Signs of hepatitis may take 15 to 50 days to appear and may last for weeks or even months. Also, a food worker can spread the disease well before they actually have any of the symptoms themselves so good handwashing and avoiding bare hand contact needs to happen at all times.

Norwalk Virus

- ♦ Organism: Norwalk virus, also known as Norovirus
- ♦ Source: Hands of infected food workers, sewage, contaminated water.
- ♦ Common Foods: Foods not cooked after handling such as baked products, luncheon meats, salads or coleslaw, raw vegetables, sandwiches, fruits. May also be found in contaminated water or ice.
- ♦ Symptoms: Diarrhea, nausea, vomiting, abdominal pain, headache and fever. May cause dehydration or death among elderly or immuno-compromised people.
- ♦ Prevention: Good personal hygiene by workers (like frequent hand washing), minimized contact of hands with food, separation of infected persons from food preparation (ill food workers should stay home), safe water sources, clean utensils and surfaces, thorough cooking, rapid cooling, prevention of cross-contamination.
- ♦ Note: 60 to 80% of people exposed to Norwalk virus become sick!

Botulism

- ♦ Organism: Clostridium botulinum bacteria
- ♦ Source: Soil, dust, intestinal tract of animals.
- ♦ Common Foods: Improperly canned foods (beans, pepper sauce, tomatoes and tomato juice, salmon, asparagus, etc.), foods held at room temperature in low-oxygen environment (for example, baked potatoes).
- ♦ Symptoms: Headache, dizziness, tiredness, double vision, muscle weakness, and difficulty speaking, swallowing and breathing. Death is likely without an antitoxin!
- ♦ Prevention: Do not distribute home-canned foods, do not use swollen or damaged cans, prepare food safely and store foods properly in the refrigerator. Do not create low-oxygen, risky temperature environments (such as leaving tinfoil-wrapped baked potatoes at room temperature). Put all foods in the refrigerator immediately.
- ♦ Note: Botulism may already be present on food you receive or may be introduced at your facility. The key to prevention is understanding what food practices are risky (see Sections #3 and #4) and keeping food refrigerated.

Cereus Bacillus

- ♦ Organism: Bacillus cereus bacteria
- ♦ Source: Soil, dust, water.
- ♦ Common Foods: Cereal and rice dishes, macaroni and cheese, spices, dairy products, soups, sauces, potatoes and meat.
- ♦ Symptoms: Abdominal pain, nausea, vomiting, diarrhea.
- ♦ Prevention: Keep hot foods hot (>140°F) and cold foods cold (<41°F). Eliminate room temperature storage. Do not let leftovers sit out. Put all foods in the refrigerator immediately. Cool all leftovers quickly in shallow pans at a food depth of 2 inches or less.

Trichinosis

- ♦ Organism: Trichinella spiralis parasites
- ♦ Source: Muscle of meat-eating animals.
- ♦ Common Foods: Raw pork and wild game.
- ♦ Symptoms: Flu-like symptoms, fever, puffy eyes, sweating, weakness, muscle pain, toxemia, myocarditis (inflammation of the heart muscle).
- ♦ Prevention: Prevent cross contamination, freeze suspect meat products 10-20 days before cooking. Cook meat to 160°F.

Staphylococcal Intoxication

- ♦ Organism: Staphylococcus aureus bacteria
- ♦ Source: Skin, nose, throat and nasal passages (cough and sneezes), hands, hair, sores, infected cuts, pimples, raw milk, sewage.

- ♦ Common Foods: Dairy products, poultry, meats, tuna, sandwich fillings, pies, salad dressing, luncheon meats and hot dogs.
- ♦ Symptoms: Nausea, vomiting, diarrhea, cramps.
- ♦ Prevention: Keep ill workers away from foods, wash hands and utensils before preparation or handling food, minimize contact of hands with food, make sure that all workers with sores on their hands wear gloves. Chill foods rapidly, keep hot foods hot (>140°F) and cold foods cold (<41°F).
- ♦ Note: At warm temperatures, *Staphylococcus aureus* produces a poison (toxin) that is NOT destroyed by cooking. *Staphylococcus aureus* is found on the mucous membranes of 30 to 50% of the population.

Salmonellosis

- ♦ Organism: *Salmonella* species bacteria
- ♦ Source: Intestines of infected humans and animals, handling reptiles (turtles, snakes, iguanas).
- ♦ Common Foods: meat, eggs, poultry, fish, cream desserts, dairy products, sprouts, melons.
- ♦ Symptoms: Vomiting, diarrhea, nausea, , headache, fever and dehydration. May trigger arthritis.
- ♦ Prevention: Wash hands and utensils before preparation or handling food, prevent cross-contamination, cook foods thoroughly. Keep hot foods hot (>140°F) and cold foods cold (<41°F).
- ♦ Eliminate room temperature storage. Do not let leftovers sit out. Put all foods in the refrigerator immediately. Cool all leftovers quickly in shallow pans at a food depth of 2 inches or less. Use only pasteurized milk and milk products.

Campylobacteriosis

- ♦ Organism: *Campylobacter jejuni* bacteria
- ♦ Source: Infected humans or animals, soil, water, handling reptiles (turtles, snakes, iguanas).
- ♦ Common Foods: Meat, poultry, fish, raw dairy products.
- ♦ Symptoms: Vomiting, diarrhea, nausea, fever, bloody stools. May cause meningitis and arthritis.
- ♦ Prevention: Don't drink or clean with untreated water. Prevent cross contamination (especially with raw chicken), cook foods thoroughly. Wash hands and utensils before preparing or handling food. Keep hot foods hot (>140°F) and cold foods cold (<41°F). Eliminate room temperature storage. Do not let leftovers sit out. Put all foods in the refrigerator immediately. Cool all leftovers quickly in shallow pans at a food depth of 2 inches or less. Use only pasteurized milk and milk products.

Listeriosis

- ♦ Organism: *Listeria monocytogenes* bacteria
- ♦ Source: Soil, intestinal tract of animals.
- ♦ Common Foods: Unpasteurized milk, cheeses, cut vegetables, cabbage, meat, poultry, cold smoked fish, luncheon meats and hot dogs.
- ♦ Symptoms: Headache, fever. May cause blood poisoning, meningitis, abortion, miscarriage, or death in immuno-compromised people.
- ♦ Prevention: Practice good stock rotation. Keep lunch meats and hot dogs as cold as possible. Clean work surfaces and equipment just before using. Use only pasteurized milk and milk products. Keep cold foods below 41°F. Prevent cross contamination.
- ♦ Note: *Listeria* can grow in cold temperatures (34°F) and in foods containing salt. Almost 25% of *listeria* cases end in death.

Yersiniosis

- ♦ Organism: *Yersinia enterocolitica* bacteria
- ♦ Source: Intestinal tract of animals.
- ♦ Common Foods: Meat (especially pork and poultry), raw milk, vegetables, tofu, contaminated water, chocolate milk.
- ♦ Symptoms: Fever, bloody stools. May cause blood poisoning, arthritis, liver disease, meningitis.
- ♦ Prevention: Clean work surfaces and equipment just before using. Wash hands and utensils before preparing or handling food. Keep cold foods below 41°F, prevent cross contamination.

Shigellosis (Bacillary dysentery)

- ♦ Organism: *Shigella* species bacteria
- ♦ Source: Intestinal tract of infected people.

- ♦ Common Foods: Milk, dairy products, poultry, potato salad, other salads, seafoods, ready-to-eat foods. Also, foods not cooked after handling - like baked products, luncheon meats, raw vegetables, fruits.
- ♦ Symptoms: Fever, abdominal pain, pus or blood in stools, secondary infection.
- ♦ Prevention: Handwashing, minimize contact of hands with food, keep cold foods below 41°F. Prevent cross contamination.
- ♦ Note: Shigella is often passed when infected workers handle food. Food workers with diarrhea should stay home.

E. Coli 0157:H7

- ♦ Organism: E. coli. 0157:H7 bacteria
- ♦ Source: Intestinal tract of animals and humans, water supplies contaminated by animal or human sewage.
- ♦ Common Foods: Meats (especially ground beef), poultry, raw milk and cheeses, raw vegetables, melons, sprouts, salami, unpasteurized fruit or vegetable juices.
- ♦ Symptoms: Bloody stools, cramps, urinary infection and kidney failure, strokes, seizures, coma and death.
- ♦ Prevention: Prevent cross contamination, keep cold foods below 41°F. Wash vegetables thoroughly, wash hands after using toilet, use clean water for all food preparation and dishwashing, wash and sanitize utensils between use, control insects (especially flies) and rodents. Use only pasteurized milk and milk products

Chemical Food Poisoning

Chemical foodborne disease is caused when poisonous substances are added to food. The two major causes of chemical food poisoning are metals and chemical products.

Metals:

When acid foods are stored and/or prepared in equipment containing cadmium, lead, tin and zinc, some of the metal dissolves into the food and can cause chemical poisoning.

Chemicals:

Chemical compounds (such as cleaners, detergents, sanitizers, pesticides and food additives) can be deadly when used for the wrong purpose or in excessive amounts, or when accidentally added to food.

Symptoms: Convulsions, burning of the mouth, throat or stomach lining, death.

Prevention:

1. Use glass/plastic containers to store acidic foods.
2. Do not spray or apply pesticides where food could be affected by the chemicals. Use only “food friendly” pesticides approved by the FDA or EPA and follow package directions.
3. Wash all raw fruits and vegetables.
4. Keep rodent poisons away from food areas.
5. Store all substances appearing to be food (like salt/sugar- looking cleaning powders) well away from food.
6. Never store chemicals or cleaners in old food containers.

Naturally Occurring Food Poisoning

There are several hundred naturally occurring toxins that either contaminate food (such as molds) or are a normal part of the food (such as poisonous fish or mushrooms).

The most common sources of food poisoning are rhubarb leaves, certain types of house plant leaves and berries, wild celery, green or sunburned potatoes and poisonous mushrooms. Toxins can also be found in sassafras, mace, nutmeg, moldy grains and peanuts, raw rutabagas, turnips, broccoli, kale, soybeans, pure licorice extracts, certain types of tea, spinach, lettuce and beets.

Symptoms: Rashes, dizziness, jaundice, vomiting, severe headache, constipation, collapse, and death. Repeated exposure remains undetected for several years.

Prevention: Never accept foods about which there is any question of safety.



Personal Approach

Now that you've been introduced to food-borne illness, think about how it could affect your food program by answering the following questions. Make copies of this page for others you want to give the test to.

1. Choose 2 or 3 different foods stocked by your food program and list all food-borne illnesses which could affect them (see example below).

Item	Possible Illness
A. Chicken	<i>Staphylococcus, Salmonellosis, Campylobacteriosis, Listeriosis, Yersiniosis, Shigellosis, Hemorrhagic Colitis, Chemical Food Poisoning</i>
B.	
C.	
D.	

2. Which at-risk populations does your food program serve? How would a food-borne illness affect them?

3. What are the most serious consequences of food-borne illness?

How Do We Control Bacterial Growth?

Inness-causing bacteria are found everywhere (in the air, soil, dust, and water; on most surfaces; in animals and people) and can be transmitted to almost any food. Foods then provide the essential nutrients and moisture for bacterial growth.

Bacteria need several things in order to reproduce:

- ♦ Temperature. Ideally between 41 and 140°F. Some grow at other temperatures.
- ♦ Water or moisture.
- ♦ Food. Although bacteria can grow on any food, they especially like high protein foods such as milk, meat and eggs.
- ♦ Time. Given the right conditions, just 1 bacteria can produce 33 million bacterial cells in 12 hours.
- ♦ Other conditions, such as the level of oxygen and the right chemistry (for example, acidity or salt).

Preventing food-borne illness requires either killing bacteria or slowing their growth (often by controlling temperature and time) enough to prevent an infective dose of bacteria or toxins. An example of slowing bacterial growth is proper refrigeration.

...► Although most microbes do not die when refrigerated or frozen, they do stop reproducing.

The easiest way to prevent food-borne illness is to prevent or control bacterial growth by:

- ...► Temperature control
- ...► Providing a clean and sanitary environment for storing and processing food
- ...► Inspecting donations for contamination
- ...► Determining how long food may be stored and proper stock rotation
- ...► Proper food preparation (specifically in repackaging food)

Section 1 Self Test

1. Why is food safety important at a food program?

2. What is a food-borne illness?

3. What is an “infective dose”?

4. Can all food-borne illnesses be controlled by cooking food?

(Hint: think about “toxins”.)

5. Which food-borne illnesses can be controlled by good worker hygiene?

6. What conditions do bacteria need in order to reproduce?

Note: This series was designed for common food program procedures. Food programs which engage in perishable food recovery or hot food programs should contact their local health department or health district for additional training.

Section 2: Sanitary Surroundings - Setting up for Safe Food

Are safe facilities important?

Bacteria need favorable time, temperature and moisture to grow and reproduce in food. Controlling these factors will be the focus of Section 4, Safe Food Handling.

Before we discuss controlling bacterial growth, however, it is important to understand how food becomes contaminated. There are three ways that contamination may occur in food programs.



- ♦ **Contaminated Products.** Some bacteria are already present in the food that is taken into the food program. Contamination may originate in the raw materials or it may be introduced during processing or by food workers hands.
- ♦ **Cross-Contamination.** One of the major sources of bacterial and viral contamination in any food establishment is lack of handwashing. Cross-contamination may also come from dishes, utensils, work surfaces or other food. For example, foods stored under raw hamburger could become contaminated by dripping juices.
- ♦ **Other Transport Mechanisms.** Bacteria can also be transmitted to food by insects, rodents, airborne dust and water.

How you set up and maintain your food program will determine how many routes bacteria have to invade and thrive. The following pages give guidelines to facility construction, organization, cleaning and maintenance.

Note: Guidelines in this manual focus on food sanitation concerns. Local building codes and OSHA regulations may impose additional requirements on your facility. These requirements rarely conflict with sanitary concerns.

Building and Grounds

The area surrounding a food program should be:

- ♦ Kept clean and clear of debris,
- ♦ Mowed frequently, with weeds removed and vegetation no closer than 2 feet to the building,
- ♦ Clear of standing water,
- ♦ Free of any evidence of insects and rodents,
- ♦ Free of trash, with trash containers covered, on a paved surface and properly secured.

The building exterior should be:

- ♦ Free of holes or cracks,
- ♦ Fitted with tight doors and windows.

These precautions help eliminate areas where pests and dirt can enter your building.

Water and Sewer

Any establishment providing food must have hot and cold water which is:

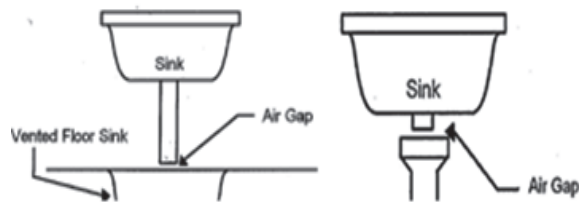
- ♦ **Safe and uncontaminated.** If the food program is on a public water supply, bacterial tests are periodically taken by the water company. Food programs on private wells should contact their county health department for more information on sampling requirements.
- ♦ **Adequate** to supply all processing, cleaning and support services.

Sanitary sewer services are also essential (and required in most counties). These services may be provided by a town or city, or may be a private system (such as a septic tank and drainfield). All wastewaters, including “gray” water from refrigerator condensing units, sinks and washing machines, must go into the sewer system.

There should be no cross-connections between the water supply and sewer. Examples of cross-connections include:

- ♦ direct plumbing connections between the two systems
- ♦ hoses which hang down into a mop sink or remain connected to an outside faucet.. (This practice is acceptable only if you install a vacuum breaker or other backflow prevention device.

- ♦ Ice machines and vegetable preparation sinks should be air-gapped in one of the following ways:



Cleaning Equipment Organization

A closet or room which is separate from all food handling and storage activities should be designated for the storage of all cleaning equipment and chemicals. This would include:

- ♦ mops, mop buckets, and wringers
- ♦ brooms and vacuum cleaners
- ♦ detergents, sanitizers and other chemicals

Cleaning cloths may be stored with cleaning equipment or in another part of the food program. In either case, clean cloths should be stored protected and separate from dirty cloths.

Whenever possible, a mop sink should be located near the cleaning storage closet. **In no case should dirty mop water be emptied into food or utensil sinks.**

Floor, Walls and Ceiling

The materials used to construct floors, walls and ceilings should be easily cleanable, non absorbent, durable and smooth (see "ENDS" in this Section). The examples below cannot cover all situations. If your building is constructed of different materials, ask yourself if it meets the ENDS criteria.

For **floors**, ENDS means seamless, sealed concrete, tile or linoleum. Carpet would not be a good choice for floor covering since it is absorbent and difficult to clean. In high traffic areas, floors should also be slip-resistant.

Walls may be painted wood or drywall, or covered with stainless steel or aluminum. If tile is used, all junctures and seams (as well as junctures between walls, ceilings, and any other panels) should be sealed with an epoxy or silicone grout. The edges of equipment attached to walls should also be sealed. This is an extension of "smooth and easily cleanable". If dirt can get into cracks and under tiles or panel, the area is not easy to clean. Coving may be used where the floor and walls connect. In all cases where paint is used, it should be light colored, such as a white latex enamel.

Ceiling tiles should be non-perforated, smooth and coated with a material that makes them non-absorbent. Ceiling and wall studs, joists and rafters should not be exposed.



The Standard: Easily cleanable, Non-absorbent, Durable, Smooth (ENDS)

The criteria of easily cleanable, non-absorbent, durable and smooth, (ENDS) applies to all ceiling, wall and floor materials as well as the surfaces of all equipment, shelving and containers. For example, a storage shelf could be made of stainless steel or wood, painted with latex enamel. Raw wood would not meet the criteria since it is absorbent, difficult to clean and not smooth. Shelf paper would not meet the criteria because it is not durable or easy to clean. As shelf paper ages, it curls and retains cuts where food debris and bacteria can accumulate which may harbor bacterial growth.

Ventilation

Good ventilation can help control temperature and humidity in your dry storage areas. These controls will in turn reduce bacteria, molds, mustiness and rusting of metal containers.

An optimal ventilation system will keep the temperature between 50o and 70o F and the humidity low. This may be accomplished with natural or mechanical ventilation, adequate insulation, and planning.

To reduce heat and moisture, storerooms should be away from uninsulated steam and hot water pipes, water heaters, refrigeration condensing units, heaters, and other heat or moisture producing devices.

Windows and doors which are part of your ventilation system should be screened and in good repair to discourage insect and rodent entry.

Windows which allow dust to enter your building should not be left open.

Doors which are used frequently (for delivery or clients) should be on vacuum springs which close automatically to keep unwanted visitors such as dogs, insects and mice out.

Lighting

Lighting should be bright enough to maintain clean and safe conditions (at least 20 Lumens Per Square Foot, or 20 foot-candles;).

Lights over food preparation and storage areas should be shielded to prevent contamination if light bulbs burst. Inexpensive plastic sleeve shields can be obtained from a hardware store.

Work Space Organization

Visitors to the kitchen area should be discouraged (clients, kids, dogs, and other beings not essential to your food operation.)

If smoking is allowed in your food program, set up a clearly marked smoking area that is away from all food or dish handling areas. Post a sign reminding workers to wash their hands before going back to work.

A separate area should also be designated for worker breaks and for storing personal items (coats, purses, employee food, etc.).

Repackaging and food preparation should be separated from other food program operations. If possible, designate a separate room for food handling. This room or area should be close to a hot water source for handwashing and cleaning. If physical separation is not possible, separate the activities by time.

Prepare food when the room is not being used for anything else and sanitize all surfaces and equipment before and after working

Garbage cans should be stored away from food handling and storage areas and should be tightly covered and emptied frequently to avoid attracting insects and rodents.

Storage Facilities

Food programs may store certain foods for up to one year before distribution. Safe food storage facilities are needed to:

- ♦ keep insects and rodents away from food
- ♦ discourage bacterial and mold growth
- ♦ maintain optimal shelf life
- ♦ ensure that food inventory is rotated so that older supplies are used first
- ♦ ensure clean supplies of dishes and single use items (paper products).

Optimal dry storage conditions are:

- ♦ **Cool** - (50 to 70°F) to prevent spoilage and bacterial growth. In no case should the temperature drop below 32°F since cans may burst or rust.
- ♦ **Dry** - to prevent food spoilage, growth of micro-organisms, infection by non-potable water or sewage, and container rust.
- ♦ Well ventilated - to maintain a cool, dry area.
- ♦ Designed to be cleanable

Storage Plan

Planning for your storage shelves should take several things into account:

- ♦ Free-standing metal shelves are ideal since they can be easily moved for cleaning or inspection.
- ♦ All food should be stored at least 6 inches off the floor and at least 2 inches away from the wall to reduce contact with rodents, insects and water
- ♦ Food should be stored separate from non-food items and above or away from poisons, toxins (such as shampoo, cough syrup or bleach) to reduce risk of spill or contamination.
- ♦ Food, dishes and single use items (paper products) should be stored away from water and sewer lines.
- ♦ Shelves should be set up to accommodate storage of individual cans or boxes (instead of shipping cartons whenever possible. Cartons may harbor pests.
- ♦ Garbage and recyclable goods (cardboard, cans, etc.) should be stored away from preparation and storage areas.

Equipment

Commercial food preparation equipment (approved by the National Sanitation Foundation, often stainless steel) is designed to pull the heat out of food and to be less easy to break and easier to clean than residential home-style equipment. If you have a choice, obtain new or used commercial refrigerators, freezers and ovens.

Since most food programs operate by donations, however, and since most donated appliances are residential-style, cooling and heating equipment should meet the following criteria.

Refrigerators, Freezers and Ice Machines should be :

- ♦ in good repair
- ♦ free of leaks
- ♦ reliable
- ♦ free of ice build-up
- ♦ plumbed correctly (air gaps for ice bins and ice machines, direct plumbing connections for refrigerators and freezers)
- ♦ able to maintain safe temperatures (34⁰ to 40⁰F for refrigerators), (-10⁰ to 0⁰F for freezers.)

The effectiveness of food preservation is dependent on maintaining a constant temperature.

Refrigerated Storage

As the temperature drops, bacteria and other microbes lose their ability to multiply. Even below freezing, however, most microbes can lay dormant, waiting for temperatures to rise to begin reproduction. It is therefore important to maintain constant and correct food storage temperatures.

- ♦ Keep refrigerators at a consistent temperature: between 34⁰F and 40⁰F.
- ♦ Keep freezers at a consistent temperature: between -10⁰ and 0⁰F
- ♦ Place thermometers in the warmest parts of all refrigerators and freezers (often on the top shelf or near the door).
- ♦ Monitor and record temperatures daily.
- ♦ Occasionally move the thermometer around to make sure that cooling is even. If not, rearrange the food for better air circulation.
- ♦ Allow at least an inch of space at the back and sit shelves and around items. When food is jammed the interiors take longer to cool and may spoil.
- ♦ Store all food off the floor of walk-in coolers or freezers.

Refrigerators and freezers should be stocked in order to make cooling and air now more even.

A well-packed, full refrigerator or freezer is more efficient because the mass of food helps maintain cooler temperatures.

Remember not to overfill it, though. Leave room for good air flow

Thermometers

You can't monitor food quality or make good decisions on product safety without information on temperature. Thermometers should be used and placed as follows:

- ♦ Attach a small metal or plastic thermometer (available at restaurant supply shops) inside each refrigerator where it is in plain view and easy to read, in the warmest area, usually near the door.
- ♦ Place a wall-mounted thermometer at eye level, in plain view and in the most isolated part of your storeroom (where heat build-up is most likely). A large storeroom may need more than one thermometer.
- ♦ Use stem probe thermometers to measure product temperatures and for any activity where food is cooked or kept warm (sample meals, cooking classes, etc.). Stem probe thermometers can also be used for cold foods (not frozen foods though) and should be used to check product temperatures upon arrival to the food program.
- ♦ Keep a daily log of temperatures for refrigerators and freezers. Keep a weekly log for storeroom temperature.

Thermometer Calibration

Because thermometers are bumped even when used correctly, they should be calibrated frequently. To calibrate a dial stem thermometer:

- ♦ fill a glass with ice
- ♦ add water to form a slush or wait until the water has time to get cold
- ♦ insert the sensing stem of the thermometer into the glass without touching the sides or bottom of the container
- ♦ after a few minutes check the temperature and use a small wrench to adjust the calibration nut (on the underside of the indicator) so that the thermometer reads 32°F.

Digital thermometers should be checked for accuracy but are not easily calibrated.

Cutting Boards

Cutting boards are especially dangerous sources of bacterial contamination. The tiny grooves made by knives hide food and water sources which are perfect for bacterial growth. These grooves can occur on wood, plastic or ceramic cutting boards. Stainless steel cutting surfaces are more impervious but are often not available. To make cutting board use safe:

Use separate cutting boards for different types of food. For example, use a yellow cutting board for chicken, a green cutting board for vegetables, etc.

Clean cutting boards after each use by:

1. scrubbing in hot, soapy water
2. rinsing
3. dipping in a sanitizer solution of 1 - 2 teaspoons of bleach per gallon of water (100 ppm chlorine). Using more bleach does not increase the effectiveness of the sanitizer. Stick to the recipe!
4. allowing the board to air dry.

Dishwashing Equipment

Dishwashing equipment should be either:

- ♦ a three-compartment sink (to wash, rinse and sanitize), or
- ♦ a dishwasher with a 180°F final rinse or chlorination capacity (50 ppm residual chlorine).
- ♦ dishwashing procedure is explained later in this Section.

Sink

Food program facilities should include dish sinks, food preparation sinks and handwash sinks. Handwashing sinks should not be used for washing food or dishes. Combining these uses dramatically increases the potential for contamination and often leaves

the handwashing sink unavailable. Dish and food preparation sinks can be combined only if they are sanitized between uses.

Handwashing sinks should be placed in each room in which food handling occurs. All re-packaging and food preparation areas should have a handwash sink.

Dishwashing Process

Dishes may be washed manually (in a three compartment sink or with a dishwasher.)

Manual Washing:

1. **Scrape and pre-rinse** dishes. Soak only if absolutely necessary. Soaking allows time, temperature and water for bacteria build-up.
2. **Prepare** all dishwashing sinks by washing, rinsing and disinfecting them.
3. **Wash** dishes in hot, soapy water (120°F). Follow label directions when adding soap - adding too much could make your sanitizer ineffective. Change the wash water as often as it become cold or dirty.
4. **Rinse** in clean hot water (120°F). Change rinse water when it becomes cold, soapy or cloudy.
5. **Sanitize** dishes by immersion for at least 30 seconds in very hot water (170°F) or for 1 minute in lukewarm water (75°F) with 50 ppm chlorine. One teaspoon of chlorine bleach per gallon of water is approximately equal to 50 ppm chlorine.
6. **Air Dry** dishes, then store them in a clean area.

Dishwashers

Dishwashers may be used in place of steps 2-6 above.

Dishwashers must reach 180°F in the final rinse or must leave a residual of 50 ppm chlorine on the dishes.

Handwashing Facilities

Unclean employee practices are the culprit in many food-borne illnesses (such as hepatitis). **Don't underestimate the importance of safe and adequate handwashing facilities! Handwashing is not an option - it is absolutely required and may be the single most important thing you can do to control food-borne illness.**

- ...► Handwashing sinks should be located in a place that is convenient to all food preparation activities. Depending on the size, number and design of your food preparation areas, you may need more than one designated handwash sink.
- ...► Handwashing sinks must have hot and cold water and a mixing faucet.
- ...► Handwashing sinks should not be combined with food or dish sinks.
- ...► Handwashing sinks should have paper towels in a dispenser or on a mounted roll holder. Paper towels should be used rather than cloth towels to prevent the spread of bacteria.
- ...► Liquid hand soap (available at department or grocery stores) should be kept in dispensers at every handwash sink. Anti-bacterial soap is acceptable but not necessary.

Bathrooms

All bathrooms should be supplied with the following items:

1. sinks with mixing faucets
2. hot and cold water
3. paper towels (hung in a dispenser or on a roll holder)
4. soap
5. a sign reminding workers to wash their hands before returning to work
6. toilets which are sealed to the floor with a line of caulk to facilitate cleaning
7. covered waste cans or a sanitary napkin disposal box.

Cleaning Methods

A clean sanitary food preparation and storage environment is critical to food safety. Sanitizing is an important part of cleaning.

Work surfaces such as counters and sinks should be washed with hot, soapy water then rinsed and sanitized frequently. Sinks used for washing both food and dishes should be cleaned between uses by washing, rinsing, spraying or soaking in a 100 ppm chlorine solution, and air drying for at least 3 minutes.



A bucket of sanitizer (100 ppm chlorine) with wiping cloths should be supplied for every work area that is in use. After cleaning a surface with wiping cloths, rinse the cloth under running water to remove any dirt or debris before placing it back in the sanitizing solution. The clean wiping cloths must stay in the sanitizer between use.

Soap should never be added to sanitizer since it forms a film and blocks the disinfecting action of chlorine.

Floors may be disinfected by using 2 1/4 cups of bleach and 3 gallons of warm water. Allow floors to air dry. Mop water should be emptied between each use and the mop should be hung to dry.

All linens should be machine washed in hot water and disinfected whenever dirty. Follow the directions on the bottle of bleach. Dish cloths and towels are notorious sources of contamination. A fresh dishcloth should be used each day.

Sanitizers

Several different types of sanitizers are effective in stopping bacterial growth. One of these, regular chlorine bleach, is the least expensive and most readily available. Check to make sure that the bleach you choose contains chlorine. Some color safe bleaches do not contain chlorine.

When sanitizing counters and appliance surfaces, a bleach solution should at 100 parts per million (ppm) or approximately 1 tablespoon of bleach per gallon of water. Dishes and utensils should be sanitized at 50 ppm or approximately 1 teaspoon of bleach per gallon of water. These concentrations are important since they allow the chlorine to disinfect the surface, then evaporate leaving little residue. Too much chlorine residue on a dish or a utensil can cause chemical poisoning

Because bleach in a bottle gradually loses strength as it ages, the amount of bleach required to reach the correct concentration may vary. To correctly determine the concentration of a sanitizer solution, use chlorine test strips (available at restaurant supply shops) and follow the manufacturers instructions.

Cleaning Frequency

Cleanliness is the first step in keeping foods free of bacterial contamination. Making a cleaning schedule and having one person responsible for this schedule increases cleaning effectiveness. After discussing it with workers, post the schedule and make sure that all necessary cleaning supplies are available.

Cleaning frequency at your food program will depend on how often and for what purposes you use the facility. The following guidelines apply to all food programs:

- ...► Clean food processing or repackaging areas before and after use. Clean counters and cutting boards between each type of food. All counters should be sanitized at least daily during each day of use. Refrigerator and walk-in cooler surfaces should be cleaned with hot, soapy water, periodically. Spills should be cleaned immediately. If heavily used, refrigerators should be cleaned monthly.
- ...► Defrost freezers and refrigerators as often as necessary to prevent ice build-up. When defrosting, sanitize appliance with 100 ppm chlorine and allow to air dry. See information on sanitizers and determining the correct sanitizer concentration previously explained in this Section.
- ...► Walk-in refrigerators (including floors) should be cleaned as often as necessary to prevent ice build-up. When defrosting, sanitize appliance with 100 ppm chlorine and allow to air dry. Cooling unit fans should be cleaned frequently to maximize cooling efficiency and to keep dust from blowing over food.
- ...► Floors should be swept after each day of use and mopped when necessary. Floors should be sanitized at least weekly.
- ...► All spills should be cleaned immediately.
- ...► Dry storage shelves should be dusted and washed as often as necessary to keep them free of crumbs, dust and food particles. At least every six months, storage areas should be thoroughly cleaned, sanitized and inspected for signs of pests, spoiled food, etc.
- ...► Mop water should be changed whenever dirty and emptied between each use. Mops should be hung to dry.

- ...► Garbage cans should be fitted with tight lids. Lids should be placed back on the can after each use. Cans should be emptied daily and cleaned and sanitized weekly.
- ...► If used often, bathrooms may need to be cleaned daily or every other day.
- ...► If preparing food, food processing equipment, such as meat slicers, grinders and can openers, should be disassembled (if necessary) and thoroughly cleaned and sanitized after each use.
- ...► In a kitchen area, dish cloths should be replaced daily and should be used for only one purpose. Never use the same cloth to clean dishes and counters or chairs and floors.
- ...► Scrubbers and brushes should be replaced often.
- ...► Utensil and food drawers should be cleaned at least every two months.

Pest Control

Pests can cause extensive damage to food supplies and, once established, can be difficult to remove. An active pest control program is recommended for all food programs. This includes:

- ...► Storage of food in covered containers, off floors and out of cardboard shipping boxes.
- ...► Closing off passageways between the food program and outdoors. This may be accomplished by using caulk, putty, insulation and window screens. Regular cleaning and building maintenance to remove pest entry routes and attractive sources of food and water such as food containers, garbage and recyclables.
- ...► A pest control log and preventative pest control measures, like fly strips, glue boards or traps beneath shelving units and at the perimeters of food preparation areas.
- ...► Emergency pest control plans for infestations, such as an agreement with your local pest control specialist. Pesticides used in the food program must be approved by the USDA or EPA for use with commercial food establishments (check the bottle or can for this label). Poison should be applied only by a licensed pest control operator. If poison is applied, food should be removed from the room to be treated. Shelves, counters and equipment should be thoroughly cleaned before food is replaced.

Common Pests and Recommended Treatments:

Cockroaches may enter the food program through shipments of vegetables from warmer climates or through cardboard shipping containers. Although keeping the area clean and restricting the use of cardboard will help control cockroach populations, insecticide is usually needed to get rid of cockroaches.

Mites and weevils may enter the food program in grain products such as flour and cereal. If you discover an infected package, throw it away immediately and clean and sanitize the area. Storing grain products in plastic containers with lids (individual or trash can size with food grade liners) will help deter mites and weevils.

Rodents often enter the food program through holes and cracks in the foundation or walls of the building. Spring traps, baited with peanut butter or similar strongly scented food, work well to control mice. Preventing entry of rodents is critical. Open containers of food and food spills attract rodents so clean up spills and store food in closed containers. Poisons are dangerous and should be used or applied only by a licensed pest control operator.

Flies and ants can be persistent during warm weather and can leave imported bacteria and feces on food contact surfaces. Flies and ants enter the building through cracks and holes. The first step in controlling these insects is sealing the building with caulk, putty, insulation and window screens.

- ...► Small numbers of flies may be controlled with a fly swatter if you immediately sanitize the area where you swat. Place any bug lights or fly strips away from food preparation and storage areas.
- ...► Removal of ants may require pesticides for entry ways and outside hills.



Section 2 Self Test

1. To reduce heat and moisture, food storerooms should be away from:

- a) Uninsulated steam and hot water pipes.
- b) Heaters or water heaters.
- c) Refrigeration condensing units.
- d) All of the above.

2. A fresh wiping cloth should be used:

- a) Every day.
- b) Every other day.
- c) Whenever the old one appears dirty.

3. Light “shields” are used to:

- a) Reduce the glare from florescent lights.
- b) Prevent contamination if light bulbs burst.
- c) Prevent contamination by insects.

4. Dishwashing steps include:

- a) Washing, rinsing and drying.
- b) Washing, rinsing and sanitizing.
- c) Scraping, washing, rinsing, sanitizing and air drying.

5. Handwashing sinks should be located near:

- a) The entry door.
- b) Re-packaging operations.
- c) Food preparation areas.
- d) Both b and c.

6. Which of the following should be found in the kitchen?:

- a) Clients.
- b) Kids.
- c) Dogs.
- d) None of the above.

7. The optimal temperature for refrigerators is:

- a) 0 to 32°F.
- b) 34 to 40°F.
- c) 40 to 45°F.
- d) Anything above 32°F.

Section 3: Risk Management

Is Risk Management Necessary?

Donations provide the majority of food for most food programs. This allows food programs to fill an important need in the community.

It also creates a problem, however, since food programs have no control of food quality before it comes through their door. This makes risk assessment and quality control in the food program important.

Definition: Risk management, as discussed in this Section, is the evaluation of food safety

Food programs must have a good risk assessment program. This Section will explain how to perform risk assessment.

Food packaging is designed to protect food. Contamination occurs when damaged or opened packages expose food to bacteria, viruses, molds, insects, rodent droppings and urine, cleaning products and other toxins, broken glass, contaminated water or sewage, etc. The assessment protocol on the following pages focuses on container integrity, the possibility of contamination and any signs of infestation.

Risk assessment deals with food safety, not food quality. Quality standards should be set up in addition to the safety standards contained in this booklet. For example, moldy bread is not safe and should be discarded. Stale bread, however, is safe but may not taste good. Whether or not you keep stale bread will depend on the size of your bread supply and your clients' demand for bread.

The degree of inspection should differ depending on the source.

- ...► Food that you purchase may require only minimal inspection. Inspection of donated food will be much more intensive.

After reading this Section, if you still have questions about whether or not a donation should be accepted, there are several sources available to you. The Washington Food Coalition can help you identify your County Extension Agent, County Sanitarian or others who may be able to assist you.

General Principles

Several general principles apply when determining whether to keep donated food. Three important things to remember are:

- ...► User your eyes and nose as first-round guides. Spoiled food may be slimy, off-color or moldy. If food looks or smells suspicious, throw it out.
- ...► Remember, however, that not all spoiled foods will smell or look bad. That's why the protocol in the rest of this book is so important.
- ...► **Never taste a donated product to determine food safety!** Remember you can't see microorganisms. Botulinum toxin is the most potent toxin known to man and the amount that would fit on the head of a pin can kill you.
- ...► Foods should always be sorted (using the risk analysis principles in this Section) before being put into storage. Do not store unsorted food near sorted food where it may be mistakenly used.

Assessment Process

Step 1: Discard the food in any obviously damaged packages in a safe manner. Rejected food may be donated to pig farmers or local composting groups. Food that is discarded in the trash should be denatured (see below). You should discard the following:

- ♦ Packages with tears
- ♦ Bottles with popped safety seals
- ♦ Jars that have been opened
- ♦ Medicine containers without safety strips
- ♦ Leaking containers
- ♦ Packages with insect or rodent holes
- ♦ Stained paper and cardboard packages, or packages that smell of a foreign material
- ♦ Products with missing or opened seals

- ♦ Any item which has been opened before it arrived at the food program
- ♦ Unlabeled or illegally labeled products
- ♦ Home canned foods

More specific information on assessing damaged containers begins later in this Section.

Denaturing

- ...► definition: intentional adulteration of food or drink rendering it unfit for consumption while remaining suitable for other uses
- ...► how-to: douse rejected food with soap or bleach so that it won't be re-salvaged from your garbage can and reused.

Step 2: Separate remaining items into groups such as:

- ♦ Human food
- ♦ Pet food
- ♦ Cleaning products
- ♦ Medicines or cosmetics

Step 3: Separate each group into package types such as:

- ♦ Bottles and jars
- ♦ Cans

Step 4: Decide if food products are to be kept according to the guidelines for that type of food in this Section.

- ...► See charts later in this Section

Step 5: Mark the date received on all cases of product and on all undated individual items. This will help you maintain product rotation and keep food only for a safe period of time.

Step 6: If labels are damaged or dirty, re-label the product with the following information. Use masking tape or self-adhesive labels and a permanent marker.

- ♦ Manufacturer
- ♦ Product
- ♦ Ingredients
- ♦ Weight
- ♦ Expiration date - If the product does not have an expiration date, assign one of your own using the keep date guidelines in this Section.

Step 7: Clean any products that are not contaminated, but dirty.

Cans, bottles and jars may be cleaned in the following manner:

1. Wipe with a clean, soapy cloth.
2. Wipe with a rinsing cloth.
3. Wipe with a disinfectant (100 ppm chlorine) as explained in Section 2 of this manual.
4. Be careful not to submerge screw-type closures.

It's All On The Label

Labels provide valuable clues to the usefulness of donated food. For example:

- ...► **Weight:** A can that is significantly lighter than the advertised weight may have been compromised (punctured and leaked).
- ...► **Ingredients:** Ingredients are critical after an item has been stocked to check against a client's food allergies.
- ...► **Source:** State regulations require labels to include the packager's address. All food should come from a licensed,

inspected source.

- ...► Lot Numbers: Lot numbers are important tracking devices for manufacturer food recalls.
- ...► Product Age: Age is important in determining how long you may safely keep a product.

Donation Diplomacy: To maintain good public relations, be diplomatic about donations. Look for opportunities to inform your donors on what items you can and cannot distribute. Once you've received a donation, sort out rejectable items such as home-canned goods after the donor has left



Evaluating Cans

Canning preserves food by heating it to temperatures that destroy harmful microorganisms and spores. After food has been heated, it is sealed into airless containers to prevent exposure to bacteria on the outside of the containers. Since most microorganisms need oxygen to live, the sealed containers also prevent growth of any microorganisms inadvertently left in the containers.

Using this method, food can be stored for long periods of time.

Containers with even minor damage can allow bacteria to enter and multiply, causing food to spoil. Remember, bacteria are tiny and could easily enter holes that are too small to see. Because of this, cans with certain types of dents are considered unsafe.

Clostridium botulinum bacteria can grow without air. Although botulism is most likely to occur in foods that have little natural acid, any can that bulges or moves easily on the ends should be discarded. The bulging is caused by gas, which *C. botulinum* leaves as a waste product.

Because home-canned foods have so much potential to cause food-borne illness, food programs can only accept commercially canned foods.

The following types of cans are unsafe and should be refused or discarded.

- ♦ Home-canned goods. You have no way of knowing if home-canned foods have been properly handled.
- ♦ Cans with swollen or bulged ends (except carbonated beverages where bulged ends are normal).
- ♦ Cans with ends that flip, indicating internal pressure. Press firmly on the top of the can; if you can move it, or if the opposite end bulges, throw it out.
- ♦ Cans with sharp dents, points or severe creasing anywhere (especially on the side or end seams).
- ♦ Cans with any dents at the juncture of the side or end seams.
- ♦ Cans that are so badly dented that they can't be stacked or opened by a manual can opener.
- ♦ Cans that have excessive or pitted rust (rust that won't rub off).
- ♦ Cans with obvious leaks or cans that are light in weight. For example, if a carbonated beverage can is soft and easy to compress, it has lost its carbonation and should be rejected.
- ♦ Cans with pop-up seals that have been popped up. Only accept these cans if the seal is intact.
- ♦ Cans with no labels or labels missing any of the following components:
 - o Product name,
 - o Ingredients,
 - o Net weight, or
 - o Name and address of manufacturer.

- ◆ Discolored cases or cans that cannot be cleaned (indicating contamination from a spill).
- ◆ Cans with holes, pinholes, pits, cracks, punctures.
- ◆ Cans with buckled or pinched tops.
- ◆ Cans with improperly formed seams (incomplete, blown-out or miswelded).
- ◆ Cans with misformed rims or loose tops.

Evaluating Bottles and Jars

It is important to inform your clients to avoid cans that spurt liquid or have an “off” odor when opened.

The following types of bottles and jars should be rejected.

- ◆ Any home-canned products
- ◆ Clear liquids which have turned milky
- ◆ Cracked jars or bottles showing any sign of leakage
- ◆ Loose lids with no safety seal. Check by tightening the lid. If it moves more than a fraction, reject it. If the lid to a jar or bottle is cracked or broken, open the jar or bottle. If it has an inner seal and that seal is intact, replace the lid. If the jar or bottle does not have an inner seal, or if the inner seal is compromised, dispose of the product.
- ◆ Jars or bottles on which the safety button is up. This is especially important if the product requires refrigeration after opening.
- ◆ Jars or bottles that are missing any contents.
- ◆ Any jar or bottle which includes a foreign substance such as dirt, mold, webs or insect skins under the lid. Hold glass containers to a light. If foreign objects, mold, discoloration or unusual product separation is present, discard the product. Some products, such as salad dressings, contain an oil that may cause normal product separation. Mold may be present in fruit juice. It may appear long, stringy, ropy or clumpy.

Evaluating Cardboard or Paper Packages

Single-layer package should be discarded if:

- ◆ It has rips, tears, holes or open corners.
- ◆ Product has leaked out.
- ◆ Significant taped repairs were made prior to arrival at food program.
- ◆ It has been contaminated by other products (stains, odors, etc.)
- ◆ Rodent gnaw marks, droppings or urine are present or can be seen with black light.
- ◆ The package includes insect bore holes, insects in package seams, movement or spots in the product, insect skins or chaff in the bottom of the container.

Boxes with an inner bag should be accepted only if:

- ◆ The inner bag is undamaged and has an airtight seal and well-formed seams.
 - ◆ The package is not stained and does not contain foreign material.
- ...► If the inner package is in good repair, you may repair the outer package with tape.
- ...► If the outer package is too damaged to repair, place the inner bag into a new plastic bag, insert the label and seal the bag.

Evaluating Refrigerated and Frozen Food Containers

In assessing products that require refrigeration, use the following guidelines.

- ◆ Discard any refrigerated food that is not cold and any frozen product that is not frozen.
- ◆ Discard any packages that have violated the manufacturer’s instructions.
- ◆ Keep refrigerated products refrigerated and frozen products frozen during assessment and storage.
- ◆ When possible, use a calibrated thermometer to check the temperature of refrigerated products upon receipt.

Packages must have complete and legible labels.

Risk Assessment Exercise

Using what you have learned from the last several pages,

Decide if you would keep or discard the following packages.

Item	Keep?	Discard?
...► A jar of Aunt Jane's home-canned green beans		
...► An unopened box of cookies		
...► A sack of flour with small, irregular holes around the base		
...► A can of nacho cheese with a slight dent located away from the seams		
...► Plastic, dented bottle of juice with no leaks		
...► Commercially canned peas with bulging ends		
...► A sack of three-day old bread		
...► A box of cereal with a torn box and intact liner		

Storage Times, General Information

The following pages give general recommendations on how long food can safely be stored at your food program. The suggested time limits deal only with food safety, not with how appetizing the food may be.

The life length of any product has a lot to do with how the product is handled and stored before, during and after it is in the food program.

Recommended dates in the following charts or on the product "use by" date may not be accurate if foods have been stored at the wrong temperature.

If foods have been consistently stored at correct temperatures, they may be safe well after the "use by" date printed on the product. The dates in the following charts can be used to determine how long you can keep products after you receive them, or the printed "use by" date. If you cannot understand the date code, label the product with the date you received it. This should only be done if you also indicate that the new date is a 'received on' date and not a new 'use by date'.

Unless otherwise specified, the times on the charts in the following pages provide the MAXIMUM recommended storage times for unopened packages.

When determining how long to keep food, always be alert for mold, discoloration, slime and damaged packaging. These are sure signs that the food should be discarded. Also be aware that the nutrient content of fresh or packaged food decreases over time.

Shelf Storage Guide for Dry or Canned Foods

FOOD	Maximum Storage Time at 50 - 70°F
Baking Powder	24 months
Baking Soda	26 months
Baby Formula	12 months
Baby Food (jars)	12 months
Beans, Peas, Lentils (dried)	36 months
Bottled Foods	36 months
Boullion Cubes or Envelopes	12 months
Bread, fresh*	2 weeks
Bread Crumbs (dry, sealed)*	6 months
Cakes, Donuts	2-10 days
Canned Goods, general	24-36 months
Chili sauce, opened	1 month
Cereal Grains, whole	
...► cornmeal or grits*	12 months
...► oatmeal	18 months
...► barley, etc.	36 months
Cereals	
...► cold type	
boxes, unopened	12-18 months
boxes, opened	2-3 months
repackaged	12 months
...► hot type	
unopened	18 months
repackaged	12 months
individually packaged (instant)	18 months
Cheese, Grated Parmesan	10 months
opened*	1-2 months
Chocolate	
...► dark* & semisweet	18 months
...► mild chocolate*	12 months
...► unsweetened	24 months
...► syrup	24 months
...► syrup, opened	12 months
...► cocoa and cocoa mixes	24 months

Shelf Storage Guide for Dry or Canned Foods

FOOD	Maximum Storage Time at 50 - 70°F
Coconut	18 months
Coffee	
...► regular or instant, unopened	18 months
...► regular, opened*	12-18 months
...► instant, opened	24-36 months
Coffee Lighteners (creamer powder)	18 months
opened	6 months
Condiments	
...► ketchup, mustard, relish, mayonnaise	12 months
...► opened condiments	6 months
...► sauces: hot pepper, Worcestershire, steak and meat sauces	24 months
...► opened or repackaged sauces	12 months
Cookies	
...► bakery	1-2 weeks
...► packaged	12 months
...► packaged, opened	1 month
Cornstarch	24 months
Crackers	12 months
opened	2 months
Diet Products, instant breakfasts	12 months
Dressings	
...► Mixes	36 months
...► Prepared, dairy-based	18 months
...► Prepared, other	36 months
...► Prepared or mix, opened	3 months
Dry Goods, general	18 months past date
Flour	
...► white	18 months
...► whole wheat*, rye*	12 months
Frosting	
...► canned	12 months
...► mix	18 months

Shelf Storage Guide for Dry or Canned Foods

FOOD	Maximum Storage Time at 50 - 70°F
Fruit and Juice	
...► citrus, canned**	12 months
...► other, canned**	36 months
...► dried*	24 months
Gelatin	
...► flavored	18 months
...► unflavored	36 months
Honey	36 months
Jellies, Jams**	36 months
Meat and Fish	
...► canned	36 months
...► canned ham*	18 months
Milk**	
...► condensed, evaporated*	12 months
...► nonfat, dry	24 months
...► nonfat, dry, opened*	9 months
...► condensed or dry, hydrated*	5 days
Mixes	
...► casserole, gravy, soup, pancakes, biscuits, cookies, cakes, muffins, pie crust, puddings, soup, potato, etc.	12-18 months
...► drinks (Kool-Aid, lemonade)	18 months
Molasses	36 months
...► canned or packages, opened	3 months
Nuts	
...► canned	24-36 months
...► in shell or packaged	6 months
...► canned or packaged, opened*	3 months
Oils and Shortening	36 months
opened*	6 months
Pasta	
...► spaghetti and macaroni	36 months
...► egg noodles	24 months

Shelf Storage Guide for Dry or Canned Foods

FOOD	Maximum Storage Time at 50 - 70°F
Peanut butter	24 months
opened*	3 months
Pectin, liquid or powdered	24 months
Pickles, olives	24 months
Pies and pastries, packaged	3-10 days
Popcorn and Chips	
...► unpopped popcorn	36 months
...► popped popcorn and chips	6 months
...► popcorn and chips, opened or repackaged	1 month
Rice	
...► white	24 months
...► brown*	3 months
...► flavored or herb	6 months
Seasonings	
...► herbs and spices	36 months
...► pepper, salt	36 months
...► vanilla and other extracts	24 months
...► vanilla and other extracts, opened	12 months
Soft Drinks	12 months
Soup, canned	
...► tomato or tomato based	12 months
...► other	24 months
Snacks	
...► bagged	6 months
...► canned	36 months
Sugars	
...► white, artificial sweetener	36 months
...► brown, confectioners	24 months
Syrups	
...► corn, maple, berry, etc., unopened	24 months
...► corn syrup*, opened	6 months
...► maple syrup*, opened	12 months
Tea Bags or Instant Tea (jar)	36 months
Toaster pop-ups	3 months

Shelf Storage Guide for Dry or Canned Foods

FOOD Maximum Storage Time at 50 - 70°F

Vegetables

...► canned or dried, general	36 months
...► tomatoes and sauerkraut, canned	18 months
...► fresh	
onions or potatoes	8 months
squash, hard shelled	8 months

Vinegar 24 months

*** Store in refrigerator for best quality or longer storage time.**

**** Must be refrigerated after opening.**

Refrigerator and Freezer Storage Guide

FOOD Max Storage Time Refrigerated at 34 - 40°F Max Storage Time in Freezer at 0°F

Baked Goods

...► cakes		6 months
...► cheesecake	5 days	1 month
...► cookies	12 months	
...► custard filled pastries	2-3 days	Not Recommended (NR)
...► donuts		6 months
...► fruit cake	12 months	
...► pies, pastries		6 months
...► pie shell, unbaked		6 months
...► quick bread, cakes		4 months
...► yeast bread, rolls		6 months

Bread

...► fresh	1 month	12 months
...► frozen dough		6 months

Butter 6 weeks 12 months

Cheese

Soft Cheeses

...► cottage cheese	2 weeks	NR
...► ricotta	2 weeks	6 months
...► cream	3 weeks	4 months

Refrigerator and Freezer Storage Guide

FOOD

Max Storage Time
Refrigerated at 34 - 40°F

Max Storage Time
in Freezer at 0°F

Hard Cheeses

...► Swiss, Cheddar, etc.		6 months
unopened	6 months	
opened	1 month	
chunks, opened	1 month	
slices	2 weeks	

...► Parmesan, Romano	12 months	
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Cream	7 days	NR
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Eggs

...► in shell	6 weeks	NR
...► whites, yolks	3 days	12 months

Fish

...► uncooked	2 days	6 months
...► cooked	2 days	3 months

Frozen Desserts (ice cream, etc.)		6 months
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Fruits

...► Fresh		
blueberries, cherries	1-2 weeks	24 months
strawberries	7 days	24 months
bananas	1-2 weeks	
apples, cranberries	8 months	24 months
melons and pears	2 weeks	24 months
avocados, grapes, peaches	2 months	
citrus fruit (grapefruit, tangerines, oranges, lemons, limes)	2 months	6 months
other fruit	2-4 weeks	12 months
canned, opened	1 week	NR

Game Meat

...► deer	3-5 days	18 months
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Refrigerator and Freezer Storage Guide

FOOD

Max Storage Time
Refrigerated at 34 - 40°F

Max Storage Time
in Freezer at 0°F

Game Meat (continued)

...► rabbit	3-5 days	12 months
...► duck, goose (whole, wild)	3-5 days	6 months

Jellies, Jams

...► opened	6 months	NR
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Juices

1 week	30 months
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Margarine

12 months	30 months
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Mayonnaise

3 months	NR
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Meat (beef, pork, lamb)

...► fresh		
chops, roast, steaks	3-5 days	24 months
ground, stew or variety	1-2 days	12 months
...► cooked meat & meat dishes	5 days	6 months
...► gravy & meat broth	5 days	6 months
...► cured		
bacon, frankfurter, etc. (unopened)	14 days	6 months
bacon, frankfurter, etc. (opened)	7-10 days	NR
sausage, fresh/smoked	3-5 days	6 months
canned ham, unopened	6-9 months	NR
canned ham, opened	3-5 days	3 months
...► casseroles, mixed dishes	3-5 days	6 months
...► dried	12 months	
...► processed, packaged		
lunch meat, unopened, vacuum-packed	25 days	6 months
lunch meat, unopened, not vacuum-packed	14 days	6 months
hot dogs	2 months	12 months
ham	1 week	6 months
...► sausage, fresh pork	1 week	6 months
...► variety (liver, etc.)	2 days	6 months
...► Milk (whole, skim)	10 days	3 months
buttermilk	14 days	3 months
...► Nuts (shelled or unshelled)	6-12 months?	18-24 months

Refrigerator and Freezer Storage Guide

FOOD

Max Storage Time
Refrigerated at 34 - 40°F

Max Storage Time
in Freezer at 0°F

...► Poultry

fresh (whole chicken, turkey)	3-5 days	12 months
fresh (chicken, turkey pieces)	2-3 days	9 months
duck & goose (whole)	3-5 days	6 months
giblets	2-3 days	4 months
-cooked, covered, with broth or gravy	2 days	6 months
-pieces not in broth or gravy	3-4 days	6 months
casseroles, mixed dishes	3-4 days	6 months
fried chicken	3-4 days	6 months

Seafood

...► fish steaks and fillets	1-2 days	6 months
...► shellfish	1-2 days	6 months

Sour Cream

3 weeks	NR
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T.V. Dinners & Main Dishes

2 days	6 months
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Tofu

7 days	4 months
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Vegetables, fresh

...► carrots, Jerusalem artichokes	3 months	
...► sweet potatoes, cabbage	8 months	
...► uncut squash	12 months?	
...► asparagus, cauliflower, mushrooms, green peppers, tomatoes, broccoli, green beans, green peas, spinach, cut squash	4 weeks	
...► lima beans, lettuce, cucumbers	1-3 weeks	
...► sweet corn, eggplant (ripe)	7-14 days	
...► salad greens	1-2 weeks	
Vegetables, canned, opened	5-7 days	NR
...► frozen, commercial		24 months
Yogurt	2-3 weeks	NR

Section 3 Self Test

How long could you keep a bottle of Ranch Dressing that is already 2 months past its expiration date?

- a) 18 months b) 16 months
- c) 12 months d) 36 months

What senses should you use to examine food?

- a) Sight b) Sound
- c) Smell d) Taste

Which of the following are signs that a product should be discarded?

- a) Mold c) Slime
- b) Discoloration d) All of the above

Which of the following bread conditions are safety concerns?

- a) Moldy b) Flattened
- c) Stale d) Crumbly

Which of the following materials can be used to denature food?

- a) Ivory soap b) Hot water
- c) Bleach d) Cold water

Section 4: Safe Food Handling

What is safe food handling?

Controlling the quality of donated food is a complex issue.

There are at least four phases of control that may affect food quality.

1. Original manufacturing - includes all processing and handling by the original and subsequent manufacturers.
 - ♦ Handling of raw product
 - ♦ Processing
 - ♦ Cooking
 - ♦ Canning
 - ♦ Packaging
 - ♦ Refrigeration
 - ♦ Storage
 - ♦ Transportation
2. Secondary preparation and storage of food – handling of food by your donor and could include:
 - ♦ Refrigeration
 - ♦ Storage
 - ♦ Transportation
 - ♦ Preparation
 - ♦ Cooking
 - ♦ Holding (for example: fried chicken from a grocery deli)
3. Handling or preparation of food at the food program
 - ♦ Refrigeration
 - ♦ Storage
 - ♦ Repackaging
 - ♦ Preparation (cutting fruits or vegetables or cooking any product)
4. Handling of food by the recipients of food from your food program.
 - ♦ Refrigeration
 - ♦ Storage
 - ♦ Handling
 - ♦ Cooking

While the first three of these phases are regulated and inspected to some degree, home use is obviously not controlled.

Consumers may or may not know proper handling and storage procedures. They are unlikely to have critical information on the age and condition of the food they receive. The food program may not know this either.

Because all of these stages provide opportunities for mishandling (and thereby for bacterial growth) food programs must be especially careful in how they handle food.

Ensuring a safe food supply at food programs involves three steps.

- ...► Step 1: Assessment of food age, packaging and general condition. Information on risk assessment can be found in Section 3 of this manual.

- ...► Step 2: Proper handling procedures. Information about safe handling is provided in this manual.
- ...► Step 3: Safe storage. Facility specifications for food programs are covered in Booklet 2 of this series.

Storage temperatures are covered in both Section 2 and Section 4.

Personnel Practices

One of the most critical areas of control over food safety is personnel practices. Microorganisms such as *Staphylococcus aureus* bacteria and the Hepatitis Virus are easily transferred from workers to food. Several points of control for personnel practices are listed below.

Worker storage and break areas

The first step in creating a safe worker environment is to designate worker storage and break areas. A designated storage area should be big enough to provide room for all purses, backpacks, sunglasses, personal dishes, etc. The storage area should be separated from all food, dish and single-use products (like paper cups or napkins). A worker storage area might be a cabinet or row of coat hooks with shelves above or below. All personal effects should be stored in this area.

A break area should also be designated. This area should be away from all food preparation and storage. A break area might include a table and chairs in a remote corner of the kitchen or storage area. If your food program is not entirely non-smoking, smoking should be confined to the break area. **In no case should eating, drinking, gum chewing, or smoking be allowed in food preparation areas.**

Personal Hygiene

Since bacteria are naturally present on hands, mouths and bodies, worker hygiene is a critical step in food protection.

Workers should be:

1. Free of any symptoms of disease that can be transmitted through food (someone with cancer should be able to work with food if they don't have a condition that is transmittable through food).
2. Clean (hair and bodies) with nails clean, trimmed short and filed.
3. Free of stray hairs. Long hair should be pulled back or covered.
4. Dressed in clean clothes (and aprons if provided) with pockets empty of items that could fall into food.
5. Wearing minimal jewelry.
6. Wearing clean disposable gloves when they have cuts, scrapes or infections on their hands.
7. Wearing clean disposable gloves whenever they are directly touching food that will not be cooked before use.
8. **Never allow a sick volunteer or employee to work with food.** Guidelines for restricting sick workers can be found in Section 5 of this Manual.

Hand washing

Hands should be washed and gloves changed between each task.

Washing is especially important:

- ◆ Before handling food (after any other activity or when first entering the food program).
- ◆ After handling trash containers.
- ◆ After using the bathroom or changing diapers.
- ◆ After petting animals.
- ◆ After coughing, sneezing or nose blowing.
- ◆ After smoking.
- ◆ After handling any toxic products or poison.
- ◆ After handling contaminated food.
- ◆ After handling raw meat, poultry or eggs.
- ◆ After handling pencils, paper, money, etc.

- ♦ After touching the face or any part of the body.
- ♦ After touching the floor or a contaminated surface.

The best method for hand washing is to:

- ♦ Use continuously running warm water.
- ♦ Moisten hands well and obtain soap from the dispenser.
- ♦ Lather every hand surface, including the areas between fingers.
- ♦ Fingers, backs of hands, wrists and under fingernails.
- ♦ Rub vigorously for at least 20 seconds.
- ♦ Clean nails with a sanitized brush. Also wash rings.
- ♦ Hold hands downward and rinse well.
- ♦ Dry hands with a paper towel.
- ♦ Turn off the faucet using the paper towel instead of bare hands.

In order to facilitate effective hand washing, hand wash sinks should be provide with:

1. A nailbrush that is frequently sanitized.
2. Liquid soap in a dispenser that sits on the side of the sink or is mounted on the wall.
3. A paper towel dispenser that is mounted near the hand wash sink. A towel roll holder such as the one used in home kitchens is acceptable.

Some workers may find that wearing gloves or frequent hand washing worsens chapped or cracked skin. One remedy for this is a medicated anti-bacterial lotion or use food service gloves that do not contain laytex.

Worker Habits

While engaged in food preparation, it is important that workers follow the guidelines below.

1. Keep hands away from face, hair or clothing. These surfaces naturally harbor bacteria that can rapidly multiply in food.
2. Turn their face away from food and cover their mouth and nose with a tissue if they sneeze or cough. The tissue should be thrown away, hands washed and disposable gloves changed immediately after sneezing or coughing.
3. Maintain minimal hand-to-food contact, especially when handling ready-to-eat food. Clean (sterilized) utensils or clean gloves should be used instead of hands.

Exercise: Floor Plan

On a blank piece of paper, diagram your food program. If worker areas are not currently designated, locate a place for a break area and for a worker storage area. Also show where the hand washing sink is located and how it is reached from work areas.

When you've drawn the floor plan, use arrows to show how the food flows from receiving to storage to repackaging, etc.

Safe Food Handling

Safe food handling procedures fall into four categories: temperature control, storage, preventing cross-contamination, and preparation.

Temperature Control

Potentially hazardous foods (such as meats, dairy-based products and cooked foods) should never be held between 40°F and 140°F. These temperatures are ideal for bacterial growth. Even foods that will be cooked before consumption may be dangerous when held for long periods of time at unsafe temperatures. Bacteria may produce toxins that are not destroyed by high temperatures.

Food programs seldom deal with hot foods. If your food program conducts cooking demonstrations or handles restaurant food, remember that there are important differences between handling raw and processed perishable foods. If your food program distributes restaurant leftovers, call your county health agency for more information and to get a permit.

In general, remember that:

- ♦ Cooked foods must be held at or above 140°F or quickly cooled to <40°F (see guidelines below).
- ♦ Food which is reheated must be heated to and remain at or above 165°F.
- ♦ Warm food that is being stored should be rapidly cooled. The following guidelines apply to all food that requires refrigeration.
- ♦ Cooled foods must remain at or below 41°F. Refrigeration units should be set between 32°F and 40°F.
- ♦ Foods that are frozen should remain between 0°F and -10°F.

Foods may be cooled quickly in the following ways:

- ♦ Place it in a shallow container (with a food depth of 2 inches or less) and put the uncovered container into the refrigerator or freezer.
- ♦ Food should remain uncovered at least 12 hours or until fully cooled (check with a calibrated probe thermometer).
- ♦ Pack refrigerators and freezers so that air can circulate
- ♦ An ice bath can also be used to cool foods. Place the container in ice and stir until food is at 41°F, and then place it in the refrigerator.
- ♦ Another method is to immerse the container in ice and use an ice paddle to stir food until it is at 41°F, and then place it in the refrigerator.

If your agency experiences a power outage, check to see if frozen food is still frozen and that refrigerator temperatures are in the acceptable range (<41 °F). If so, keep refrigerator and freezer doors closed. Refrigerated food will last for a few hours without power. A closed, well-packed freezer will last for at least 1 day. Adding dry ice or block ice to a refrigeration or freezer unit may extend this time. It is important, however, that water not be allowed to drip onto food packages or pool in the bottom of the unit.

Foods that are thawed before repackaging should be thawed in the refrigerator or under continuously running, potable cold water. Thawing food should not raise the temperature above 40°F.

Freeze fresh meat, poultry or fish immediately if it will not be used within a few days.

Be discriminating. If you can't tell or remember when a food was refrigerated, or if the food shows any signs of spoilage, throw it out.

HACCP food procedures (Section 5) recommend that food not remain out of temperature for more than 2 hours. Time out of temperature includes all time for transportation, preparation, cooking and cooling. Since you cannot account for all of the time on most food you receive, never allow food to remain out of temperature unless you are actively working on it. In no case should you allow that time to exceed 2 hours. If you are packaging food over a period of time, place food back in the refrigerator or freezer periodically during the process rather than waiting until you are finished with the whole project.

In order to protect perishable foods that are donated or purchased:

1. Pick up perishable foods last.
2. Always transport perishable foods in a refrigerated vehicle or in an ice chest. Check the temperature when the food is picked up and when it is dropped off at the food program.
3. Even short stops during warm weather or in a heated car can raise the temperature of foods enough to encourage bacterial growth.
4. Upon arrival at the food program, unload and store perishable foods first.

Calculating Time-out-of-Temperature

The longer food remains out of temperatures between 40°F and 140°F, the more likely that bacteria will multiply to a dangerous level. Because donations contain unknown variables, food at food programs should not remain out of temperature any longer than absolutely necessary and never longer than 2 hours. An example of calculating time-out-of-temperature is given below.

A large grocery store calls their local food program to offer them 6 containers of chicken that were not purchased from the deli yesterday. A volunteer is dispatched to pick up the chicken. He arrives at the store at 10:00 a.m., picks up the chicken and then proceeds to two other stores to pick up additional donations.

He arrives at the food program at 11:15 and places all of the donations at the entrance door. Another volunteer stocks the food, putting the chicken in the refrigerator at 11:40.

At 1:00, a third volunteer opens the chicken and repackages it into smaller zip-lock bags. The small zip-lock bags are placed in the refrigerator at 1:35.

The zip-lock bags are then placed in food baskets at 1:50 and passed out to clients between 2:00 and 2:30.

TOTAL TIME OUT-OF-TEMPERATURE: 2 HOURS AND 55 MINUTES

The two hour time limit could have been met if perishable items were picked up last and stored first.

Dry Storage

Information about designing storage areas is contained in Section 2 of this manual. All stored foods should be maintained at proper temperatures, covered, labeled, and rotated. Proper storage reduces the chance of rodent or insect infestation.

Temperatures

Optimal temperatures in dry storage rooms are **between 50°F and 70°F**. Temperatures may be lower as long as the food doesn't freeze. Freezing temperatures, and temperatures above 70°F, degrade food quality.

Containers

Food should be stored in containers that are easily cleaned, non-absorbent, durable and smooth. Airtight containers are preferable. Bulk foods should be stored in food-grade plastic containers or in containers with food-grade liners. Food grade liners are usually clear, while trash can liners are dark colors.

Labeling

Containers in freezers, refrigerators and dry storage should be labeled with the name of the item and the date it is placed in storage. Foods can be labeled inexpensively with masking tape and a permanent marker. It is especially important that cleaning solutions be labeled and stored away from food, dishes or single-use products. Labeling food products will help you decide which food is unsafe and should be discarded. It will also help you analyze how rapidly food turns over within your food program.

FIFO (First In First Out) or OIFO (Oldest In First Out) and Storage Times

Stored foods should be rotated so that the oldest foods are used first. For an emergency food program, this doesn't always mean 'first in, first out' since foods are donated with a variety of expiration dates and shelf life. Always aim for the oldest foods, or foods closest to expiration, to go out first. Any foods that appear moldy or spoiled should be discarded immediately and disposed of in such a way that they cannot be re-used. Discarded food may be donated to pig farmers or local composting groups. Any food that is being placed in the garbage should first be denatured with bleach or ivory dish soap.

Any salvaged, refrigerated food or food left over from a cooking demonstration should be discarded after 3 days. For more information on assessing food safety, see Section 3 of this manual.

“Take out the papers and the trash...”

Preventing Cross-Contamination

Cross contamination occurs when clean fresh food, hands or utensils come into contact with bacteria from soiled hands, clothing, cleaning materials, food processing equipment, work surfaces, utensils, or dishes, etc. It can also occur when juices from raw meat, poultry or fish are exposed to other raw or cooked foods. To prevent cross-contamination:

1. Wash hands frequently. Wear gloves when handling ready-to-eat food. Change gloves after handling meat and before handling ready-to-eat food.
2. Wash and sanitize kitchen towels and cloths frequently.
3. Dishcloths are preferable to sponges since they are easier to clean. Use separate cloths for cleaning dishes and work surfaces.
4. Keep raw meat, poultry and fish away from other foods.
5. Store meats on trays on the lowest shelf of the refrigerator.
6. Wash and sanitize cutting boards, knives and utensils between uses, especially after processing meat products.
7. Never use the same utensil on different foods.
8. If possible, use separate cutting boards for meats, other raw foods and cooked foods. Color-coding the boards is a good way to keep uses separate.
9. Keep food preparation areas and surfaces clean and sanitized. See Booklet 2 for information on cleaning and sanitizing work areas.



Food Preparation

Vegetables that may not be washed before consumption should be washed and agitated under cold water before distribution. If necessary, a brush may be used to dislodge dirt. Sinks should be cleaned and sanitized before being used to prepare any food items.

Bulk bread items which are not individually wrapped (such as bagels) should be protected from contamination by having a food program worker dispense them or by providing utensils or waxed paper squares to food recipients. A person reaching into a large container to grab a piece of bread will invariably touch other pieces of bread as well. Since you are unable to determine whether a client's hands are clean and free of disease, allowing them to touch food that you will distribute to other persons leaves you liable.

Planning Safe Food

Clients without adequate refrigeration and cooking facilities should be provided with food that can be safely left out at room temperature for several hours. In deciding which foods to include, remember that bacteria do not grow well in foods that are high in acid or low in moisture.

The following items are examples of good foods to include in a transient package:

- ♦ Nuts, peanut butter
- ♦ Crackers
- ♦ Bread, cookies, cakes and fruit pies (no custard-type items or cheesecakes)
- ♦ Tortillas
- ♦ Jam, honey, syrup, candy
- ♦ Butter, margarine and cooking oil
- ♦ Dry cereals
- ♦ Dry powdered milk and bottled water

- ♦ Bottled or canned fruit juices
- ♦ Raw, canned or dry fruit
- ♦ Raw vegetables
- ♦ Canned meats or other canned goods which do not require preparation
- ♦ Dried processed meats (salami, pepperoni, jerky, etc.)
- ♦ Pickles, relishes, mustard, ketchup
- ♦ Dry or hard cheeses (cheddar, parmesan, etc.)
- ♦ Potato chips and other packaged snack foods
- ♦ Sealed pudding packs

Section 4 Self Test

1. In what cases is eating or smoking allowed in a food preparation area?
 - a. In between tasks
 - b. On very cold days
 - c. Always
 - d. Never
2. When should disposable gloves be worn?
 - a. When working on food that will not be cooked or washed again.
 - b. Always.
 - c. When a worker has cuts, scrapes or infections on his or her hands.
 - d. a and c
3. How long should workers scrub hands when washing?
 - a. Under 10 seconds
 - b. At least 20 seconds
 - c. For 1 minute
 - d. Any amount of time
4. How long may food be out of temperature and still be guaranteed safe to eat?
 - a. Less than 2 hours
 - b. Between 1 and 3 hours
 - c. Less than 6 hours
 - d. Never

Section 5: Re-Packaging Bulk Foods

Is Repackaging a Significant Risk?

Repackaging is the most complex food preparation operation at most food programs. Repackaging consists of dividing large or bulk packages of food into smaller units. These units are typically sized to meet the needs of a family for a few days.

Repackaging is considered a complex food preparation operation because it involves breaking quality control seals, physically handling the product (as opposed to just handling the package) and labeling information for product safety.

Frozen or Refrigerated Product

Few food programs have the capacity to safely repackage frozen, refrigerated or prepared foods. This process requires special training and facilities. General information about repackaging frozen or prepared foods is provided in this manual. Do not repackage these types of foods unless your food program has been inspected and certified for that purpose.

Contact your local health district representative for more information and to obtain the necessary certification.

Dry Product

Food programs repackage dry goods (bean, rice, etc.) from bulk packaging to family-sized units. Most facilities can be modified to meet the standards necessary for this process.

This Section of the manual will introduce HACCP (Hazard Analysis and Critical Control Point) as a prevention-based system for managing food safety in food programs. Before we look at HACCP, however, a few points on preparing for repackaging are worth exploring.

Repackaging Environment & Equipment

As explained in Section 2 of this manual, the facilities for any food preparation operation should be separate from other food activities. If physical separation (a separate room) is not possible, the activities should be separated by time. You should not, for example, re-package food in the same place and time as you are distributing to clients.

It is important that the re-packaging area be close to a source of hot water. Hot water is necessary for hand washing and general cleaning and sanitizing purposes.

The facilities must also be easily cleanable, not-absorbent, durable and smooth (ENDS). This includes floors, walls, ceilings, counter tops, equipment and storage containers.

Before beginning a re-packaging operation, the facility should be clean. All counter tops should be sanitized with 100 ppm chlorine (see booklet 2). Equipment, utensils and containers should be washed, rinsed, sanitized with 50 ppm chlorine (see Section 2) and air dried. These areas should be cleaned again immediately after use.

It is important to note that shallow containers cool more quickly than deep containers. Metal containers also speed the cooling process since the metal conducts heat more rapidly than plastic. Metal containers may be used, for example, to stack filled baggies.

Containers

Containers for repackaged foods should either be new or sanitized. All packaging should be easily cleanable, non-absorbent, durable and smooth. It should seal in order to protect the product. Note: "Vacuum packaging" is not recommended for food program repackaging efforts.



New Containers

- ...► The easiest solution for repackaging is to use zip-lock bags. Paper bags offer minimal protection and are not recommended.
- ...► Never re-use baggies, aluminum foil, plastic wrap or freezer wrap since they cannot be easily cleaned, are not durable, and are not non-absorbent. All of these qualities make it easy for the materials to collect bacteria.

Sanitized, Re-Used Containers

- ...► Examples of containers which may be re-used are glass jars and heavy plastic tubs (butter containers or restaurant grade containers such as those used for sour cream in restaurants). Containers may be donated by individuals or restaurants.
- ...► Containers that are being considered for re-use must have originally contained food, have smooth surfaces and be free of seams. Cans (i.e., coffee cans) can not be used for repackaging food items, but may be acceptable for non-food items, like laundry detergent.
- ...► Containers should be carefully examined for chips or cracks. Jar lids should be clean and free of rust. All defective containers should be discarded.
- ...► Containers may be cleaned either by washing, rinsing, sanitizing with 50 ppm chlorine and air drying or by washing in a dishwasher where the final rinse reaches 180oF. Some residential dishwashers may not have rinse cycles that reach 180oF and may not be approved by the county health agency for use in food programs. Some residential dishwashers do, however, have a longer rinse cycle than commercial dishwashers, so a residential dishwasher might be acceptable if the full rinse cycle is allowed to run.

For more information on manual dishwashing, see Section 2 of this manual.

Handling

Section 3 of this manual series explains the general principles for handling food. It is especially important that these principles be observed during re-packaging operations. For example:

- ...► Disposable, single use gloves should be used whenever a worker is touching a food that will not be washed or cooked before consumption.
- ...► Utensils may also be used to avoid direct hand-to-food contact.
- ...► Dispose of unsafe food appropriately and quickly. Surplus food may be given to pig farmers or local composting groups. Bleach or ivory soap should be used to denature food in dumpsters or trash cans so that it is not re-used.
- ...► Use caution in repackaging any food that will be served to an “at-risk” population. Examples include powdered milk or formula used to serve infants or the elderly, or fresh fruits and vegetables in food programs that serve clients with AIDS or other medical conditions. Food programs should, however, assume that everyone they serve is in an “at-risk” population and take appropriate precautions.
- ...► Use care in repackaging any food that was packaged under pressure, heat or vacuum sealed. Violation of this type of package decreases the shelf life and may require special measures such as refrigeration. Most canned and bottled goods fall in this category.
- ...► Use packaging which is appropriate for the food you are working with. Never pour hot liquids into ordinary glass jars since they are not tempered to withstand sudden heat changes and may break.
- ...► Temperature control of refrigerated or frozen food is critical and should be monitored. Frozen food should never be re-frozen once thawed. Refrigerated food should be kept at the appropriate temperature.

Dispose of any refrigerated or frozen food that has been out of temperature in your facility for more than 2 hours.

The amount of time that a food has been “out of temperature” is cumulative. It includes time spent in transporting, thawing, during preparation and distribution~ As food programs can not guarantee how the food was handled prior to the receipt of the food or how long clients will take to get the food home, all possible care should be take to assure that refrigerated or frozen food is placed in proper temperature control immediately.

Labeling

Labeling is required by law on all food produced by manufacturers. In repackaging operations, food programs separate the label information from the food. Minimally, you should supply a replacement label with the product name, ingredients and net weight. A more complete label, however, would include:

1. The common or usual name of the product
2. The net weight
3. A list of ingredients
4. Applicable dates (such as the original “sell by” date, the date the food was repackaged or the expiration date)
5. The name of the distributing agency.
6. You could also include preparation or serving instructions on the label. For some foods, a recipe has been shown to dramatically increase the rate of use.

Section 5 Self Test

1. Which information is not required on a label?

- | | |
|-----------------------|----------------|
| a) Product name | b) Net weight |
| c) Picture of product | d) Ingredients |

2. Which method below is an acceptable way to dispose of unusable food?

- | | |
|-------------------------------------|--|
| a) Throw it in the garbage | b) Flush it down the toilet |
| c) Feed it to the neighborhood dogs | d) Denature it with bleach or ivory soap and discard it. |

3. Which container would cool food the quickest?

- | | |
|--------------------------|--------------------------|
| a) 5 gallon plastic tub | b) 6 inch tall metal pan |
| c) 2 inch tall metal pan | |

True or False

T F Paper bags are good repackaging containers.

T F Zip-lock bags may be re-usable if they are washed and sanitized.

T F Jars or tubs which are re-used should be washed, rinsed, sanitized with 50 ppm chlorine and air dried.

T F Jars with only small chips may be used as long as they don't leak.

T F Gloves or utensils should be used to avoid hand-to-food contact when repackaging.

Using HACCP to Ensure Food Safety

HACCP (Hazard Analysis and Critical Control Point) is a preventative food safety system designed for use in the space program. HACCP ensures food quality by considering food handling as one continuous system: from receiving to storage and preparation. Many types of food service now use HACCP to manage food quality.

HACCP recognizes five Critical Control Points:

1. Cooking
2. Cooling
3. Cross contamination
4. Re-heating
5. Holding

Most food program operations do not include cooking as part of normal operations; some food programs do conduct cooking classes or prepare sample meals to show what can be done with the food they provide. Food programs do routinely deal with the remaining four CCP's during repackaging operations.

Product are thawed, repackaged, cooled and held. We will consider all these steps in developing a HACCP approach to safe handling of repackaged food.

The following steps make using HACCP easy.

1. Chart the food flow for any potentially hazardous food that you provide. Do this by observing actual procedures and including all steps from receiving to delivery.
2. Identify the Critical Control Points in the process. A CCP is any point where control can be applied to eliminate or reduce a food safety hazard.
3. Establish Critical Limits for temperature, time or any other factor that can serve as a "boundary" for safe food.

These limits can be based on information from the other Sections in this manual. For example, the limits on time for thawing and preparation would correspond to information in Section 4, which says that food must not remain out of temperature for more than two hours and that thawing should occur in the refrigerator or under running water.

- ...► Determine what types of monitoring will insure that Critical Limits are observed.
- ...► Document monitoring and corrections. In order to verify the process, it is necessary to keep records of how you meet the critical limit and any corrective actions.

Corrections are necessary whenever monitoring shows a problem.

- ...► Verify that the HACCP process works. Verification uses the documentation records from step 5. For example, when repackaging chicken, how often was the temperature taken? Were the temperatures always less than 40°F? If the product was out of temperature, could it be brought back to temperature in time or was it discarded?

The next pages show a sample HACCP chart, a repackaging flow chart, and a blank HACCP flow diagram.

Use the blank HACCP flow diagram to design a HACCP plan for a food that your food program repackages. You may also design your own diagram based on what best fits your program's operating procedures. After you have filled in the operation flow, decide which steps are critical control points and show how they can be monitored.

Figure 1: A Sample HACCP Chart

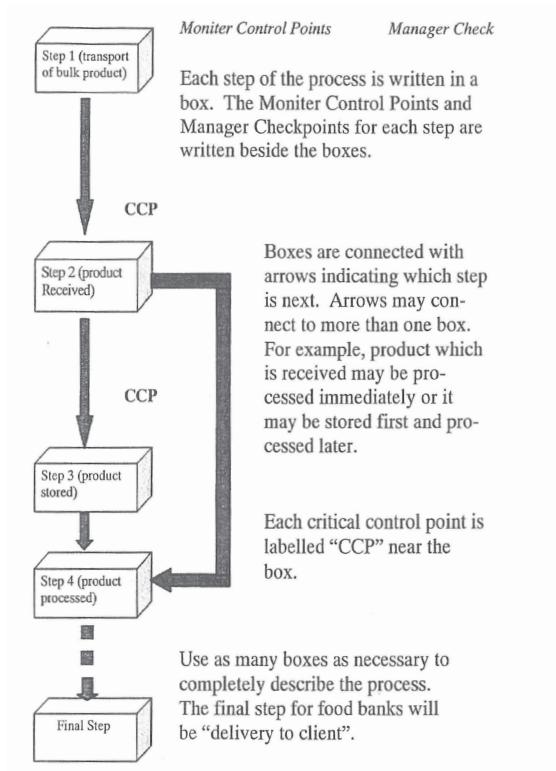


Figure 2: A Sample Repackaging Flow Chart

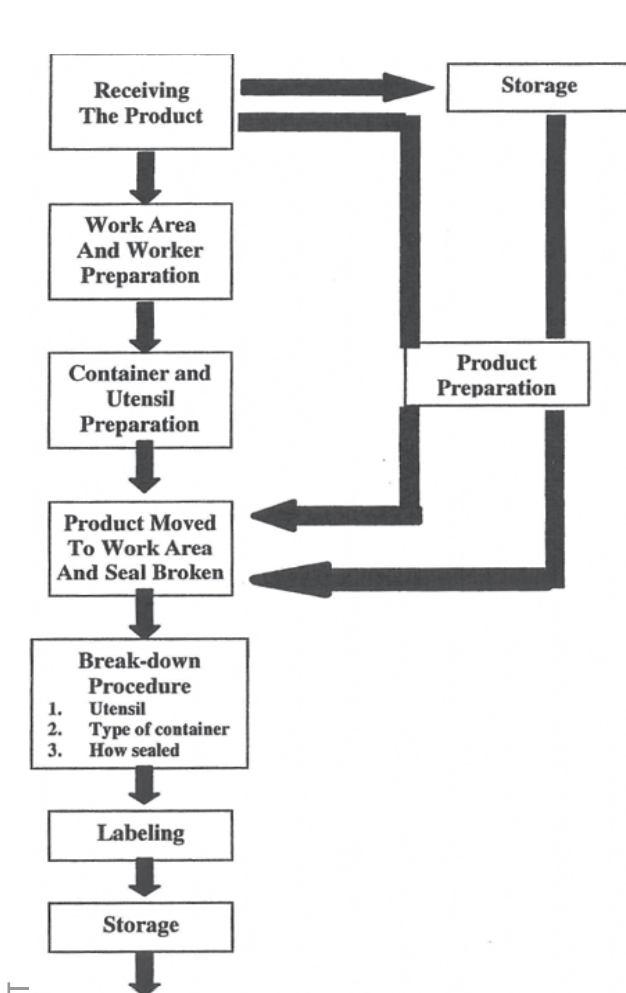
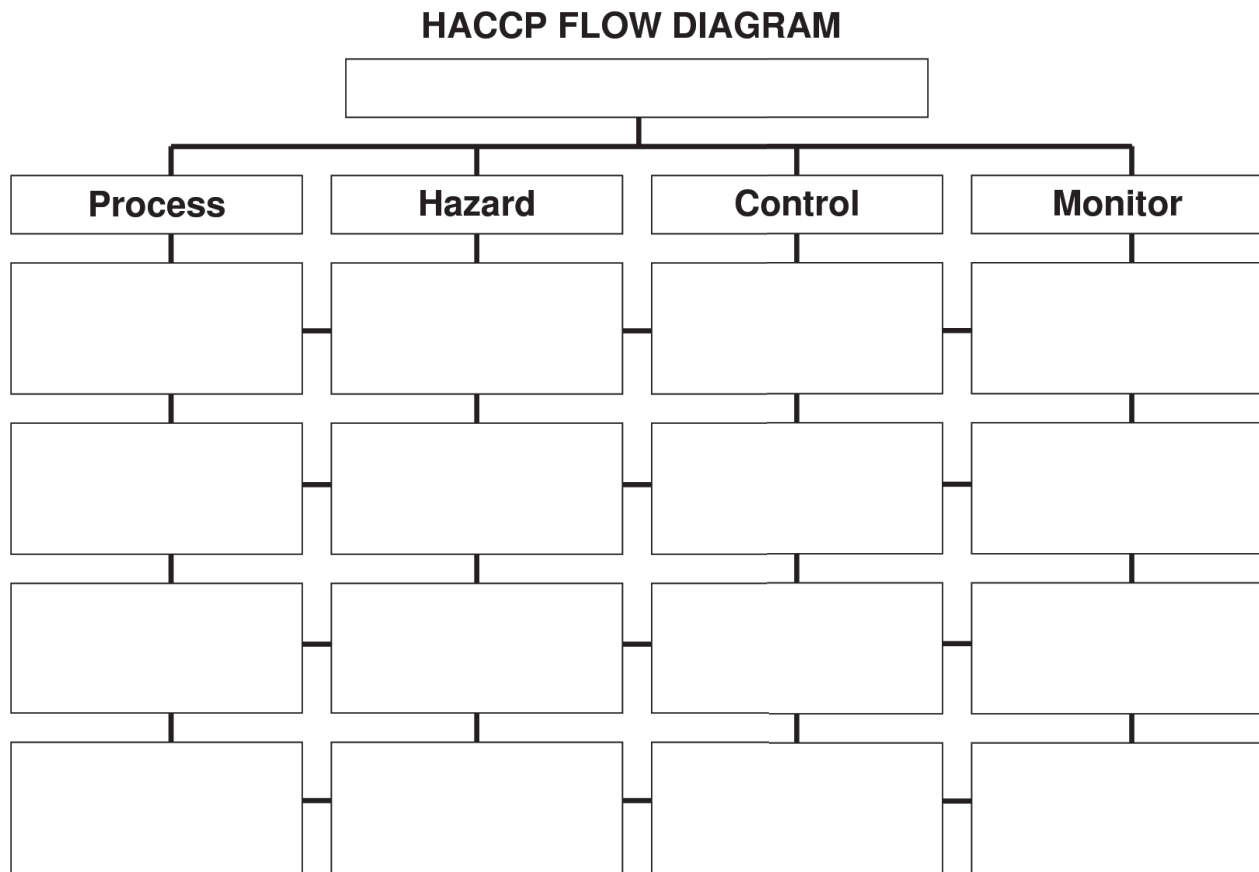


Figure 3: A Fill-in-the Blank HACCP Flow Diagram



More Questions About Food Safety?

Washington Food Coalition would welcome the chance to hear from you!

Just call or write.

Washington Food Coalition is a member-based statewide coalition of emergency food providers.

*To learn more about membership, visit us online at www.wafoodcoalition.org or call us at 1-877-729-0501.
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