U S Chemical

*Providing Exceptional Quality Since 1962*

# Preparing for the Health Inspector

## Understanding What They Want

# Table of Contents

If you are a food service manager, when the local Health Inspector shows up on your doorstep and flashes his or her badge, it can be a time of considerable stress. If you are well prepared, this stress can be minimized. If you are not prepared, you may end up paying stiff fines, having frequent future inspections, or in a worst case scenario, being closed down. The visit may either be part of an annual inspection program, or may also be in response to a complaint that your food made somebody sick.

If the Health Inspector closes your restaurant while testing is being done, the loss to your business can easily be tens of thousands of dollars. The National Restaurant Association (NRA) estimates that between fines, lost business, quadrupling of insurance costs and lawsuits from customers, one instance of foodborne illness caused by a restaurant will cost that business $75,000. Being prepared is well worth the extra effort, especially if the alternative is closing your doors.

As a result of public health concerns, the Food and Drug Administration (FDA) has established a federal food code governing food plants and a model food code for states to adopt in regulating restaurants and other food service providers. This model code includes a program called Hazard Analysis Critical Control Point (HACCP). HACCP helps establish a documentation trail to prevent the practices that can cause the spread of disease. Modern handling of beef and poultry has contributed to greater risks in food handling. It is estimated that 3 out of every 1,000 cows carry E. coli, while automated poultry slaughtering and carcass washing has been linked to the spread of salmonella. Even in the shell, it is estimated that 1 of every 10,000 eggs carries salmonella.

The risks in a restaurant are not limited to the food itself. Employees who are sick can contaminate food, making other people sick. One sneeze by an employee can travel up to 12 feet at a speed of 200 mph, potentially infecting everything in its path. The most common mistakes employees make include: improper cooking of food, inadequate food holding temperatures, improper reheating, poor hygiene, holding food for too long, poor cleaning of equipment, failure to properly sanitize equipment and bad wiping cloth procedures. Bad food handling procedures and poor training are the most common culprits in foodborne illness. To deal with this, state food codes have been written to address these 3 main areas:

1. Cooking and holding of food for the proper amount of time and at the proper temperatures.
2. Personal hygiene of employees including staff habits, health and clothing concerns.
3. Proper sanitation of premises, equipment and utensils.

There are more than one million retail food establishments in the U.S. They are operated by more than 12 million employees and regulated by more than 3,000 local health departments and state agencies.

This brochure is designed to aid the food service manager who needs a reference guide, but already has a basic knowledge. It is not a substitute for a formal training course as the brochure does not cover all aspects of the code. Your local health inspector can provide you with a complete copy of the code requirements for your area. What follows are sections (alphabetical by subject) that provide a brief description of the requirements of the model federal food code. States may choose to adopt the FDA Model Food Code, to adopt it with modifications, or to write their own codes. The trend has been towards states adopting the Model Food Code with some modifications, as more than 30 states have done. Because of this, state codes will often vary from the Model Food Code. The local health department can provide you with a current copy of your state's food code.

## BATHROOMS

Bathrooms should be kept clean and disinfected. Hand soap, towels and toilet paper should be readily available. Both hot and cold water must be available. Doors to the bathroom are to be self-closing and toilet seats should be the open front type.

## CLEANING AND CLEANING FREQUENCY

When designing a sanitation program for a restaurant, objects to be cleaned should have the cleaning frequency designated. Flatware, dishes, pots, pans, kitchenware and food prep surfaces should be washed and sanitized after each use. Equipment and utensils should be cleaned and sanitized at least every four hours throughout the day, not just at closing if they come in contact with potentially hazardous foods. Grills, microwaves, stoves and other equipment should be cleaned at least once a day. Nonfood surfaces, such as walls, should be cleaned as often as necessary. This means any time soil is present and regularly as part of the facility cleaning schedule.

When preparing to clean, there are several important considerations, including the selection of a wiping cloth. Sponges can no longer be used in commercial kitchens because they harbor bacteria. Dedicated wiping cloths should be used so there is no cross-contamination from surface to surface. For example, a wiping cloth used to wash dishes should not be used to wipe table tops. When not in use, the wiping cloths should be stored in a container of sanitizing solution to control bacteria growth. If wiping cloths are left lying on a counter top, bacteria can begin to grow. By leaving wiping cloths in a sanitizer solution when not in use, the wiping cloths stay sanitary.

## FOOD COOKING TEMPERATURES

The factors governing the growth of microorganisms are frequently discussed by use of the acronym **FATTOM**. For germs to grow, there must be **Food**. The food must be at the proper **Acidity**. Germs must be allowed to grow over a long period of **Time** and at the proper **Temperature**. Most germs need **Oxygen** and plenty of **Moisture**.

Potentially hazardous foods are any foods that consist in whole or part of milk, milk products, eggs, meat, poultry, fish, shellfish, edible crustacea or other ingredients in a form capable of supporting rapid and progressive growth of infectious or toxigenic microorganisms. Potentially hazardous food does not include foods which have a pH level of 4.6 or lower or a water activity level of 0.85 or less. Foods with pH's below 4.6 are too acidic to support microorganism growth. Water content of a food is measured by a number called its water activity level. No water is a zero while pure water is a 1.0. So if a food has a low water activity level, there is not enough water in the food for the food to grow bacteria.

Food safety is very temperature sensitive. Bacteria grow the best in food with a temperature of 41°F to 135°F.* This zone is called the danger zone. Cold foods should be stored at temperatures below 41°F and hot foods should be stored at temperatures above 135°F. Food in the danger zone between 41°F and 135°F must not remain there for more than one hour during the preparation for cooking and may not stay in the danger zone for more than four hours total. Checking the internal temperature of the food is the only way to ensure that it has reached the correct temperature. One of the biggest changes in the 1999 Model Food Code was the change in cooking temperature requirements. The standard requirement now is to cook potentially hazardous food to an internal temperature of 145°F and hold that temperature for 15 seconds. This requirement has several exceptions. Eggs being prepared individually for a customer, such as "over easy" or "sunny side up" need not reach this temperature. In any case where potentially hazardous foods are not being cooked in a manner to guarantee that germs are being killed, the food service provider must cook the food individually for each customer, or post signs indicating this. This guarantees that customers don't unknowingly put themselves at risk.

For meats such as hamburger, where the meat is processed and ground, the meat must be cooked to a temperature of 155°F and held for 15 seconds. Alternately, if the cooking temperature would be 155° for 15 seconds, cooking to 145°F for 3 minutes, cooking to 150°F for 1 minute, and cooking to 158°F for 1 second, are all deemed to be equivalent acceptable methods of safely preparing the food.

For meats, such as poultry, stuffed poultry, stuffed pastas, wild game animals, stuffed fish, or any other stuffing food, the cooking temperature is 165°F with the temperature held for 15 seconds. Whole roasts, such as beef roasts, hams and pork roasts must be cooked in an oven of at least 250°F until the internal temperature is 142°F for 8 minutes, 144°F for 5 minutes, or 145°F for 3 minutes and held above 130°F.* Again, all of these time and temperature combinations are deemed acceptable.

For whole-muscle, intact beef steaks, if being prepared individually for a customer, the surface temperature of the steak need only be 145°F and all of the steak surface must achieve a cooked color change. Because microwaving does not heat/cook food evenly, the cooking temperature for a microwave is 165°F. The food must be stirred and allowed to stand for 2 minutes before service to obtain a temperature equilibrium. Fruits and vegetables that are cooked for hot holding need to be cooked to a temperature of 135°F.

There are two ways to accurately measure the internal temperature of food: thermometers and T-sticks. Thermometers must be stainless steel with no glass or mercury in the stem. They must be accurate to ± 2°F and must be sanitized before and after each use. Usually they are stored in a sanitizing solution when not in use. T-sticks are plastic coated cardboard rectangles. One section of the T-stick has a temperature sensitive chemical that changes color when a specific temperature has been reached.



*Per 2003 Model Food Code Supplement

When tasting of food is done during cooking, a utensil may only be used once. A cook should have a supply of spoons or other utensils to allow for frequent tasting if desired.

## DISHMACHINES

Many restaurants use a mechanical machine to wash the dishes, glasses and ware. There are two basic types of dishmachines: high temperature and low temperature. In a dishmachine, sanitizing is done either by spraying 180°F+ water on the dishes at the end of the cycle (for high-temp dishmachines), or by spraying a sanitizing solution of 50+ ppm of chlorine on the dishes at the end of the cycle (for low-temp dishmachines). High temperature dishmachines have an external heater, called a booster heater, to raise the water temperature of the final rinse to 180°F+. When using hot water to sanitize in a dishmachine, the sanitization is achieved if the ware achieves a surface temperature of 160°F. While the NSF testing requires 180°F–195°F water at a rate of 15–25 psi, the desired effect is to achieve a surface temperature of 160°F. Health inspectors have the option of checking dishmachines either by monitoring the water temperature in the final rinse, or by putting a piece of 160°F temperature sensitive tape on a dish and running it through the dishmachine. The temperature sensitive tape will change color, usually from clear to black, if 160°F is achieved. Even if the water in the final rinse is over 180°F and the final rinse pressure is correct, if the tape does not change color, an establishment may still be cited by the health inspector. If the dishmachine is a low temperature machine, test strips must be used to monitor the chlorine concentration at the end of the cycle. In the 2003 Supplement, the FDA has modified low temperature dishmachine requirements to include either a visible means of verifying detergent and sanitizer injection or a visible or audible alarm if they haven't.

The dishmachine should be kept clean and free of lime with the spray and rinse arms and nozzles clear and not plugged. In a low temperature machine, the wash tank temperature should be 120-140°F. In a high temperature dishmachine, the tank temperature should be 140-160°F. For any commercial dishmachine, there will be a plate mounted on the outside of the dishmachine that lists the acceptable operating temperatures for washing and rinsing. When the dishmachine is first tested by the National Sanitation Foundation (NSF), these ranges are established. Health inspectors should be using the NSF plate for the specifications to check in determining if the dishmachine is operating properly.

## EMPLOYEE HYGIENE

Foodborne illness can be caused by poor personal hygiene of food handlers. Approximately 26% of foodborne illness is caused this way. Frequent handwashing is the easiest way to prevent foodborne illness. Hands should be washed whenever a different food type is being handled or at least every two hours. This includes waiters and waitresses. Eating, drinking, using the bathroom and smoking can all cause contamination. Employees should wash their hands after any of these activities.

Hair nets or other effective hair restraints are required to keep employees hair out of the food and to keep employees from touching their hair. Jewelry should not be worn on the hands, except for a wedding band. Employees should wear clean uniforms each day. They should not wear street clothes. Employers are required to provide a locker room or similar changing area for employees. Employees who are sick should not be allowed to handle food. Handkerchief use should not be allowed as it is not sanitary. Disposable tissues should be used by employees. Employees should always wash their hands after using a tissue as this is the primary way viruses are spread.

Sweat and blood are contaminants. Employees should take precautions to prevent sweat or blood from contaminating food. If an employee has any open sores, they must wear protective coverings (plastic gloves for hands, large bandages for rest of body, etc.) to protect the food they handle. If preparing food for a "highly susceptible population" such as preschool or elderly individuals, employees must wear gloves when handling food. Employees who handle food are no longer allowed to wear fingernail polish or artificial fingernails as they pose a contamination hazard for the food, unless they wear gloves to prevent the contamination hazard.

## EQUIPMENT AND UTENSILS

To avoid chemical contamination, the food code requires that no cooking vessels may contain toxic metals. This means that kettles, pots, serving ware and pans may not be made out of copper, brass, cadmium, zinc, lead, pewter

(with over 0.05% lead), tin or enamelware. Copper and cast iron are only acceptable for use as cooking surfaces. With all of these metals, if an acidic material (tomato sauce for example) contacts these metals, the acid may dissolve the metal thus contaminating the food. Equipment and utensils should have surfaces that don't have cracks, chips, dents,

separations, tight inside corners, deep knife cuts, or crazing. These things can all harbor bacteria.

Equipment should be installed in a way that makes it easy to use and clean. Equipment should also be installed away from garbage containers, soiled fabrics and high traffic areas. If equipment is table mounted, the legs must be 4 inches unless the equipment is sealed to the table. If equipment is floor mounted, the equipment must have 6 inch legs unless the equipment is sealed to the floor. This allows for proper cleaning under the equipment. For both table mounted equipment and floor mounted equipment, there are exceptions which lower the height requirements, provided that the space beneath the equipment is of a certain minimal size.

Utensils can cross-contaminate. Separate utensils must be used for different foods. Proper storage between foods is important. While serving, utensils can be stored with the serving end in the food or in a container with running water that removes food particles and washes them away (ice cream scoops). Utensils should never be laid on a counter top where the food left on the utensil can then creep into the danger zone, unless the utensils will be cleaned and sanitized at least every four hours.

Salad bars and buffets will often hold food from a period of several hours up to all day. However, at the end of the day all food should be transferred to other containers for storage. The original containers and any serving utensils should be washed and sanitized. While it is a good practice to change serving utensils every four hours throughout the day, it isn't required unless the potentially hazardous food is in the danger zone. The general rule for food contact surfaces and utensils is that if they contact potentially hazardous food, they should be cleaned and sanitized every four hours, but there are exceptions.

## FOODBORNE ILLNESS

When a person becomes ill after eating contaminated food, the illness falls into one of two classifications: foodborne infection or foodborne intoxication. The older term, food poisoning, is no longer used. A bacteria, like the bacteria that causes botulism secretes chemicals that are toxins (dangerous to humans). Cooking does not destroy these toxins. If the toxins are what makes a person sick, this is called foodborne intoxication. If food is infected with this type of bacteria, cooking the food may kill the bacteria but leave the toxins in the food. This food would still be dangerous to people and capable of causing disease. If the bacteria producing the toxins are still alive when ingested, they can continue to produce toxins in the body. This is often called a toxin mediated infection, but is really just another form of intoxication. If on the other hand, the bacteria themselves cause the disease in a person, then the illness is called foodborne infection. Because toxin mediated infections may be listed as a separate classification, some materials may refer to three classes of foodborne illnesses.

**Where do people who get foodborne illness get infected?**

| | |
|---|---|
| **Restaurants** | **51%** |
| **Home** | **14%** |
| **Delicatessens/Caterers** | **12%** |
| **Cafeterias** | **8%** |
| **Nursing Homes** | **5%** |
| **Other** | **10%** |
| | **100%** |

**THE MICROORGANISMS (GERMS) CAUSING ILLNESS OR DEATH ARE:**

| | Out of 100% | Source of Disease Causing Microorganism |
|---|---|---|
| **Salmonella** | 15% | Poultry, milk, eggs, meat, and poultry products |
| **Clostridium perfringens** | 14% | Meats, stews, and gravies |
| **Norwalk virus** | 22% | Infected people, usually food handlers |
| **Escherichia coli** | 7% | Meat (especially beef), milk, apple cider |
| **Staphylococcus aureus** | 5% | Meats, cream sauces, prepared salads |
| **Hepatitis virus** | 3% | Infected people, usually food handlers |
| **Shigella bacteria** | 2% | Many foods especially those washed in water |
| **Campylobacter bacteria** | 2% | Meat, poultry, milk and water |
| **Clostridium Botulinum (botulism)** | 2% | Canned foods, especially meats |
| **Unknown** | 28% | Source of these illnesses not determined |

According to the CDC, 48 million Americans had a foodborne illness in 2011. Of these 48 million Americans, 128,000 were hospitalized and 3,000 people died. The Centers for Disease Control and Prevention (CDC) estimates that the annual cost of foodborne illness is $10 to $83 billion per year. The average person gets foodborne illness many times in their life. Most of the time, the illness is minor enough to not require hospitalization. A person may feel "under the weather" or have stomach flu for a few days. Both of these symptoms may be caused by foodborne illness. Coupled with long incubation times (it can take up to several weeks to get sick after exposure), most foodborne illness goes undiagnosed by doctors. This is a sobering reminder of the scope of the problem. The number of bacteria present and the person's overall health and resistance to disease determine the severity of the disease. Food is at the highest risk of being contaminated in a restaurant during preparation and service. Food spends most of its time in the danger zone during these times.

**Foodborne illness can be caused by three types of contamination:**

**Biological** - bacteria, viruses, fungi, parasites

**Chemical** - food preservatives, additives, cleaning chemicals, toxic metals

**Physical** - paint chips, ventilation, dust, jewelry

Biological contamination causes more foodborne illness than anything else. Bacteria grow where moisture, warm temperatures, and near neutral pH environments exist. Bacteria growth is controlled through observing proper food storage times and temperatures. Chemical contamination can occur through the pesticides applied to crops. The CDC estimates 50% of all produce is contaminated with pesticides or soil borne contaminants.

# FOOD

## *COOLING FOOD*

Over 60% of all foodborne illness can be traced to inadequate cooling, meaning not cooling hot foods quickly enough to the proper refrigerated temperatures. It can take up to 6 days for a full 5 gallon pail to cool completely to less than 41°F. Large quantities of food should be split up into in 4" deep pans and refrigerated. Rapid cooling equipment is also acceptable as is placing the food pan in an ice bath or adding ice as an ingredient to the food to cool it. Cooling should occur as quickly as possible. Checking the internal temperature of the food is the only way to be sure that it is the correct temperature. The requirements for refrigerated cooling are that the food should go from 135°F to 70°F in 2 hours and then from 70°F to 40°F in 4 hours. The total refrigerated cooling time must not exceed 6 hours or the food must be discarded. Any other time unrefrigerated food stays in the danger zone (41° - 135°F) for 4 hours, it must be discarded.

Raw food may be handled by cooks with bare hands. However, any ready to eat food, except for washing uncut fruits and vegetables, should only be handled with gloves or utensils. A frequent source of contamination is the food service employee who contaminates food by touching it with bare hands while plating or presenting the food.

In 1999 the FDA adopted a ban on bare hand contact with ready-to-eat food (with the exception above). In 2001, the FDA softened its stance to allow a food establishment to demonstrate why they needed to touch ready-to-eat food with bare hands, but also required the establishment to demonstrate that their procedures were monitored and would not increase the risk of foodborne illness. The 2003 supplement allows bare hand contact unless the population being served is "highly susceptible". In general, food employees should use suitable utensils instead of their bare hands to handle ready-to-eat food.

## *FOOD SAFETY*

Food processing plants in the United States are subject to federal rules and inspection. Food imported from other countries is not necessarily inspected. Even for food produced in the United States, the Centers for Disease Control and Prevention (CDC) recommends that all food be treated as if it may be contaminated, because they estimate up to 50% of it is contaminated. If that is true of domestic food, there is a much greater risk involved in using food from foreign sources that don't have to comply with our food rules. Federal inspectors actually check about 1% of the food imported into the U.S. However, even if food is contaminated, it is important to note that low levels of bacterial contamination are common in food and are not considered a health hazard as long as the food is handled properly (proper cooking temperatures) once received by the restaurant. High levels of bacteria in food, on the other hand, always make food unsafe. Unfortunately, there is no easy way to determine the level of bacterial contamination. They are never visible to the naked eye. 60 bacteria would easily fit on the cross-section of a human hair. The most

*Per 2003 Model Food Code Supplement

responsible thing to do is to use only established commercially available sources. Most states require that food served in restaurants be purchased only from commercial suppliers. Local purchasing from unregulated food suppliers is not allowed. Washing of food not being cooked (fruits and vegetables especially) is important because it removes pesticides and lowers the number of bacteria present.

Incoming shipments of food should be checked for packaging condition. Food in damaged packages should not be accepted. Any dented, bulging, or leaking cans should be rejected. Eggs with cracked shells should always be rejected.

Finally the FDA* has clarified a consumer's right to request raw or undercooked animal foods. These foods pose a higher risk for food borne illness. A restaurant can serve this food only with appropriate warnings, an approved HACCP plan, or just for the requesting customer.

### *FOOD SERVICE MANAGER CERTIFICATION*

As part of the HACCP guidelines, each restaurant is required to have a certified food service manager on staff. Some states additionally require that a food service manager be on site at all times. To become certified, one to three day courses are available that cover the required material and then administer a standardized test. Among the more popular tests, the Educational Testing Service (ETS) test is recognized in 49 of the 50 states. The certification is good for 5 years and can be renewed.

### *DRY FOOD STORAGE*

Dry foods must be kept dry to keep bacteria present from growing while in storage. 50°F is the best storage temperature for dry foods, but there is no code requirement. Dry goods in a storeroom must be stored at least 6" off the floor. Pallets are not acceptable because they are only 4" and do not allow cleaning underneath them.

### *FROZEN AND REFRIGERATED FOOD STORAGE*

Frozen foods may contain bacteria that are not killed by freezing. When these frozen foods are heated, the bacteria thaw out and start to multiply. Frozen foods must be stored in freezers that maintain a temperature of less than 0°F. Refrigerated food should be stored at less than 41°F (40°F in Wisconsin). The code does allow for using 45°F for refrigeration to accommodate older refrigerators, but storage times are then reduced. Refrigerators and freezers must have thermometers placed in the warmest areas (usually just inside the doors) to monitor the temperature. Refrigerators and freezers should be kept clean of spilled food on shelves that are not rusty.

Eggs should always be refrigerated when in storage. Some restaurants have the habit of storing eggs at room temperature but this practice is not safe. Raw fish must be frozen for 7 days at -4°F or for 15 hours at -31°F to kill any parasites present. While this freezing may kill parasites, the bacteria present are usually not killed. Freezing does keep the bacteria from reproducing.

### *GENERAL FOOD STORAGE*

If incoming food is to be stored in different containers than the shipping package, separate containers should be used for each food product. Use only food grade plastic or stainless steel containers. All stored food must be kept covered with impervious covers. Cooked food should be stored above raw food, not the other way around. Stored food (raw or cooked) should be labeled and dated so that the stock can be rotated and easily identified. Refrigerated and frozen food must be stored on racking at least 6 inches from the floor.

Once cooked, food can be refrigerated at 41°F for 7 days (or 45°F for 4 days) before it must be discarded. Employees should not be allowed to take this food home. All raw refrigerated food must be stamped with an expiration date indicating when it must be discarded.

### *HOT AND REHEATING OF FOOD*

Almost 30% of reported foodborne illness is caused by inadequate hot holding of foods. Holding equipment for hot foods must be capable of maintaining a temperature of 135°F.* Checking the internal temperature of the food is the only way to be sure that it is the correct temperature.

Roughly 25% of foodborne illness is caused by inadequate reheating of food. Using holding equipment to reheat food allows the food to spend too much time in the danger zone. Food should be heated to an internal temperature of 165°F as quickly as possible with normal cooking equipment (less than 2 hours) and held there for at least 15 seconds and then transferred to the holding equipment. There is usually an exemption for rare roast beef to allow it to be held at 130°F. Where the cooking temperature is less than 145°F, the reheat and holding temperatures are usually the same as the initial cooking temperature. The time spent reheating food counts toward the four hour rule (as does thawing, preparation, holding and cooling). Potentially hazardous food should be discarded after seven days under proper



*Per 2003 Model Food Code Supplement

refrigeration (<41°F) or three days when stored at (<45°F).

### *FOOD THAWING*

There are three acceptable ways to thaw frozen food. Food may never be allowed to thaw at room temperature on a counter. The approved methods include: placing the frozen food in a refrigerator, placing the frozen food under cool (70°F or colder) running water for up to 4 hours (2 hours in Wisconsin), or microwaving to thaw immediately before cooking.

## GARBAGE STORAGE

Garbage is always in the danger zone, meaning it is growing bacteria. Proper care of garbage containers reduces the risk of insects, rodents and the danger of foodborne illness. Garbage cans should be emptied often and the cans cleaned after each emptying. Properly designated garbage containers should be nonabsorbent with tight fitting covers. Open boxes or bags are not acceptable as garbage containers. The best garbage containers can be foot opened so that handwashing does not need to be done every time the garbage is opened. There should also be an adequate supply of garbage cans for the size of kitchen present.

## HACCP

To help in controlling foodborne illness, the FDA has developed a program called Hazard Analysis Critical Control Point (HACCP). Modeled on a program being used in food plants, HACCP is a management program that emphasizes analyzing food handling and storage processes to identify where, if control is lost, foodborne illness can occur. Some examples of dangerous situations include:

**Dripping** - one food type dripping on another
**Contact** - one food type touching another
**Utensils** - using the same utensil for 2 different food types
**Surfaces** - tabletops, countertops, shelving
**Cooking** - improper temperatures or times
**Cooling** - improper temperatures or times
**Hot holding** - improper temperatures
**Heating** - improper temperatures or times
**Thawing** - improper temperatures or times

**HACCP can be thought of as a seven step process:**

1. Conduct a hazard analysis to determine risks associated with all stages, from growing raw materials and ingredients to final product ready for consumption.
2. Identify critical control points to control these hazards.
3. Implement conditions to control hazards at each critical control point.
4. Implement effective procedures to monitor control for each point.
5. Implement corrective measures to be taken if a deviation occurs at a point.
6. Implement effective record keeping systems for HACCP plan activities.
7. Implement procedures to verify the plan is working effectively.

When used properly, these steps provide a training and management tool that helps prevent foodborne illness and gives a documentation trail to be traced if a problem occurs.

## HANDWASHING

Frequent handwashing is the easiest way to prevent foodborne illness. Hands should be washed for 20 seconds each time they are washed. Proper handwashing procedure includes scrubbing with soap and water for 10-15 seconds, thoroughly rinsing with warm water, and thoroughly drying the hands. If employees use gloves in food handling, employees should wash their hands before using gloves and after removing gloves. The handwashing sink must be capable of delivering at least 100°F water.

Handwashing should occur when first starting work and whenever a different food type is being handled or at least every two hours. Employees should also wash their hands after eating, drinking, smoking, using the bathroom, or touching their hair or face. This includes waiters and waitresses. The law requires dedicated sinks for hand-washing. Sinks used for washing dishes or food preparation may not also be used for handwashing. There must be an adequate supply of soap and single use towels.

The use of bar soap in handwashing is a controversial issue. First allowed, then prohibited, it is currently allowed today. However, the FDA clearly states that if it is to be used, drain racks must be provided to aid the bar soap in drying. Soap dishes, which store the bar of soap in a pool of water, have been identified as a source of bacterial contamination. Given that liquid hand soap dispensed from non-refillable containers eliminates this risk, the use of bar soap should be discouraged.

If used, nail brushes should also be stored on drain racks and should be washed and sanitized frequently. Like bar soap, dirty nail brushes can do more harm than good and their use is no longer mandated. Cloth towels are not

acceptable for employees unless they are the roll type so that a fresh section of towel is available for each handwashing.

## HAZARDOUS CHEMICALS

Many of the cleaning products used in a restaurant are hazardous materials. OSHA requires a restaurant owner to have an SDS for every hazardous chemical present. The SDS contains safety information on handling the hazardous chemical. As a general practice, a responsible facility manager will have an SDS for all chemical products available for inspection and review by all employees that handle the chemicals. Chemicals must be stored in an area where food cannot be contaminated. As part of the HACCP program, the facility manager should check cleaning procedures to ensure that food cannot be accidentally contaminated.

In any facility where hazardous chemicals are being used, like a kitchen, OSHA requires that an eyewash be present. Many state health codes now require this as well. There are kits being sold that fit onto a faucet so that an expensive stand-alone station need not be installed. When hazardous chemicals are diluted with water, as many concentrates are prior to use, labels for the container holding the solution are required if the cleaning solution is not used immediately. This has become especially prevalent with spray bottles. Spray bottles are routinely filled with a dilute cleaning or sanitizing solution and then used over several days. Unlabeled containers are no longer allowed.

## HEALTH CODE UNIFORMITY

While there is a federal food code, unless you run a food processing plant monitored by the FDA or USDA, you will never see a federal inspector. Each state has a food safety code, based on the FDA model food code, that generally differs in small ways. The differences in each state's codes, makes giving one uniform standard for all states impossible. While the state codes may be different than the federal code, they are generally stricter.

## ICE IN A RESTAURANT

Ice is a food and as such, ice should be treated like any other food. Ice must be made from drinking water and cannot be used first for cooling food and then second to serve in beverages. Cooling ice must be separate from ice going into food. Ice containers are food storage vessels. They should be washed, rinsed and sanitized before use like any other food contact surface.

## INSECT AND RODENT CONTROL

Effective pest control measures include: plugging openings in the foundation, walls and windows. Doors should be self-closing. Eliminate food and water sources for the pests and aggressively kill pests when found. Traps and glue boards are preferable to bait boxes. Under no conditions can open baits be used.

## PLUMBING

Apart from the need for plumbing to meet all code requirements, airgaps must be used on all food preparation and handling equipment (like a food washing sink). An air gap must be 2 times the diameter of the supply inlet to prevent back siphonage. When hoses are used for washing food, the hoses must be constructed of food grade materials. Garden hoses do not qualify and may not be used in a kitchen for washing food. Garden hoses are acceptable in a janitorial sink, such as for filling mop buckets.

## RECEIVING FOOD

When refrigerated or frozen food is received, it should be received at appropriate temperatures. In general, refrigerated food should be less than 41°F. For milk and eggs, the receiving temperature is often different. Many states allow milk and eggs to be received at temperatures of less than 45°F, instead of 41°F. Frozen food should be less than 0°F. Hot food should be hotter than 140°F. When received outside of the acceptable temperature range for refrigeration or freezing, the food should be refused.

## REUSE OR RESERVICE OF FOOD

Once food is placed in front of a customer, it may not be reused unless the food is served packaged and the service does not compromise the packaging. Relish trays, bread, rolls and ice water are examples of foods commonly misused by reservice.

## SANITIZING

Sanitizing is the process of applying a chemical or heat to kill bacteria present on a food contact surface. Improper cleaning of equipment causes 9% of all foodborne illness. Cleaning must be performed before sanitizing of a surface, or the sanitizer may be ineffective. Cleaning refers to the 5 step process of: removing gross soils, washing with detergent (110°F water), rinsing with fresh water, sanitizing, and air drying.

Sanitizing kills bacteria to reduce the numbers of bacteria present to safe levels. Sanitizing does not necessarily kill

all of the bacteria present. Sanitizing should be done on any surface in a restaurant that contacts food including: counters, plates, flatware, glasses, kettles, mixers, pots, pans and other food preparation equipment. On tables where food is served, sanitizing solution is sprayed onto the tables and the tables are wiped to spread the sanitizer evenly on the table. In the kitchen, large equipment and food prep tables are cleaned and sanitized using the 5 step procedure.

When manually sanitizing a hard surface, a chemical is applied to the surface at a certain concentration for a certain amount of time. In a 3 compartment sink system, pots, pans, utensils and ware may be washed by hand. Washed and rinsed objects are placed in the sanitizing solution before allowing to air dry. In 2001, the FDA added a temperature requirement for the detergent solution used in washing in a three compartment sink. The detergent solution must be at least 110°F. If the sanitizer is a chemical, like a 50 ppm solution of chlorine bleach or a 200 ppm solution of a quaternary ammonium chloride (quat), the object must be immersed for a minimum of 60 seconds in sanitizing solution of at least 75°F. Test strips are required to monitor the level of chemical sanitizer present. If sanitizing is being done by hot water in a 3 compartment sink, the object must be immersed in hot water (usually 170°F or higher) long enough for the object to reach 160°F. Sanitization occurs at 160°F. In both cases the object being sanitized must be allowed to air dry. Towel drying can cause cross-contamination and is unsanitary. Towel drying does not remove bacteria, towels just move the bacteria around.

Many restaurants will polish previously sanitized and air dried flatware and glasses. This is an acceptable practice as long as clean, dry cloths are used which are dedicated for this purpose. However, both the ware and the cloth must be clean, dry and sanitary.

## WARE HANDLING

When handling the ware which will contact food, there are rules for how to hold the ware. Plates should be held by the edges, not with a thumb on the eating surface. Flatware should only be gripped by the handle, not the eating surface. Glasses and cups should be gripped by the base, not by the lip. As basic as these ideas are, waitstaff in restaurants routinely violate these rules. Clean equipment and utensils must always be stored in a selfdraining position that allows air drying. When dry, they must be covered or inverted to protect the food contact surface from contamination. Glasses and flatware preset in a dining room should also be protected from contamination by being wrapped, covered or inverted.

## WARE STORAGE

Glasses, cups and flatware should be stored inverted or covered to keep dust and dirt from contaminating the surfaces. Single service articles, like paper plates should be stored in closed containers. Clean sanitary objects should not be stored next to toilets, near garbage, or near dirty fabrics.

## WATER SUPPLY

If a restaurant is not connected to a municipal water supply, but rather is on well water, the water must be tested regularly to ensure its safety.

## SUMMARY

This brochure is an aid for the food service manager who needs a reference guide, but already has a basic knowledge. This is not a substitute for a formal training course, as the brochure does not cover all aspects of the code. Your local health inspector can provide you with a complete copy of the code requirements for your area.