



## HOW SAFE ARE THE FOOD AND BEVERAGES

## AT YOUR SCHOOL?

### Introduction

Consider the following scenarios, both actual and potential:

- One afternoon, four students at a middle school start vomiting and complaining of stomach aches, nausea, and just not feeling well. The parents are called to pick up the ailing children and advised to take them to their family physicians. Subsequently, the infection is diagnosed as *E. coli*, and one student is admitted to the hospital for more than a week, while three others whose symptoms were less severe must remain at home while recovering. Public health professionals investigate, but cannot find a common source for the *E. coli* infections; however, they suspect that the children all ate food from a contaminated food source, perhaps at school.<sup>1</sup>

- In Japan, between 890 and 1,000 people became sick in January 2014 from eating food contaminated with the pesticide Malathion.<sup>2</sup> The amount of this pesticide in the infected foods was 2.6 million

times the permissible level. (Symptoms of Malathion poisoning include nausea, vomiting, diarrhea, muscle cramps, weakness, and abdominal pain.) The source was frozen items: pizza, chicken nuggets, and croquettes—foods that are often served in school cafeterias or that children might bring to school in a lunch box.

- In late December 2013, three children from a middle school in Davidson County, North Carolina, contracted *E. coli*; one had to be hospitalized for more than a week.<sup>3</sup>

- A school cafeteria worker or food handler contracts some type of diarrheal infection. He goes to school as usual and prepares food without washing his hands properly, thus contaminating the food. Or, while changing a toddler's diapers, a childcare worker gets feces under her fingernails and fails to wash her hands properly before preparing a finger-snack for the young children in her care.

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Every day at home, at school, and in many other locations, millions of people eat and drink food and beverages that could potentially make them sick because: (1) the food is contaminated at the source during shipping or storage; (2) they don't wash their hands

and subsequently infect themselves and others; or (3) they eat food handled by people who didn't wash their hands and transferred an infectious agent. Thus, students and school personnel can get sick at school in various places and under a variety of situations. The contamination almost always occurs by accident and may be caused by bacteria or viruses, parasites, and/or a variety of toxic substances, some of which can cause catastrophic responses in the human body. For example, when salmonella gets into the intestinal system, it can cause flu-like symptoms (e.g., nausea, vomiting, abdominal cramps, diarrhea, or fever), and even serious complications such as kidney failure and death.<sup>4</sup>

Some food- and water-borne illnesses can linger for hours or days; others for months or even years and cause long-term consequences, including death. Unfortunately, there are no vaccines that prevent food-borne illnesses. Children are at particular risk of catastrophic reactions to these contaminants because they weigh less than adults and their immune systems are still developing.

Food-borne illnesses are largely preventable if foods are handled, stored, and served properly, and appropriate hand-washing practices are implemented. This article will discuss some of these preventive measures in detail and describe what school personnel should do to ensure food and beverage safety at their schools. Specific recommendations will be provided for teachers, administrators, food handlers, and parents.

## First Steps in Ensuring a Food-safe School Environment

In the United States, free breakfast, lunch, and after-school snack programs make it possible for children to get the nutrients they need throughout the day in order to better equip them to perform well at school. It is reported that the rise in

food-borne illnesses in the U.S. could be due in part to the increasing need for schools to provide meals to children in need and the burgeoning number of children receiving these meals. Meals are provided through the U.S. National School Lunch Program (NSLP) and the School Breakfast Program,<sup>5</sup> which make it possible for children from low-income families attending public schools and even those in a large number of private schools to receive breakfast and lunch every school day; and a snack in after-school programs. Some local programs also provide meals for the families to eat over the weekends.

The United States is not the only country providing free meals to its school-aged children. The state government in India provides one of the world's largest free-meal programs, which reaches more than 120 million children. However, the parents of these children certainly did not expect that they would become ill and even die from consuming a meal at school. This in fact happened in July 2013, when 23 children ranging in age from 4 to 12 became very ill from eating lentils, potatoes, and rice contaminated with an insecticide. Thirty other children had similar but less-serious symptoms.<sup>6</sup>

## Avoiding a Contaminated Food Outbreak at Your School

*What Is an Outbreak?* A food-borne contaminant *outbreak* (referred to also as "cluster" or "epidemic") occurs when two or more

### Contaminated Food\*

#### How Food Gets Contaminated

- During slaughter;
- Irrigated with contaminated water;
- Handled with unwashed hands;
- Cross-contamination;
- Insufficiently cooked;
- Stored at the incorrect temperature;
- Bacteria multiply to dangerous levels after expiration date.

#### Common Food-borne Diseases (Bacterial)

- *Campylobacter*
- *Salmonella*
- *E. coli* O157:H7
- Botulism

#### Common Water-borne Diseases

- Cryptosporidiosis
- Cholera
- *E. Coli* O157:H7
- Hepatitis A
- Viral gastroenteritis

#### Symptoms of Food-borne Illnesses

- Diarrhea
- Abdominal cramps
- Fever
- Vomiting
- Headache

\* [http://www.cdc.gov/healthyyouth/foodsafety/pdf/preventing\\_foodborne\\_illness.pdf](http://www.cdc.gov/healthyyouth/foodsafety/pdf/preventing_foodborne_illness.pdf); [http://www.mde.k12.ms.us/docs/teacher-center/eatingsafelyatschool\\_20140312143923\\_717581.pdf?sfvrsn=2](http://www.mde.k12.ms.us/docs/teacher-center/eatingsafelyatschool_20140312143923_717581.pdf?sfvrsn=2); <http://www.azdhs.gov/phs/olds/epi/waterborne/list.htm>.

## Contaminated Food Outbreaks

### How a Contaminated Food Outbreak Could Occur at Your School

- A parent provides food (e.g., cupcakes, filled doughnuts) for a classroom of children to celebrate her child's birthday.
- A Spanish teacher brings ethnic snacks so her class can celebrate Cinco de Mayo.
- On International Day, students are given the opportunity to taste foods from various cultures that have been supplied by school families and church members. These treats include either undercooked or improperly stored items made with milk, eggs, or meat products.
- The school holds a bake sale as a fundraiser.
- Concession stands sell food and beverages to spectators at athletic events or a school fair.
- Children and staff purchase food and drinks from vending machines in the school.
- Students bring their own lunches to school and share food with their friends.
- At residential/boarding institutions, dormitory students eat three meals a day in the cafeteria or dining hall. Even in day schools, the students (and staff) usually eat at least one meal a day on site.

People who eat or drink at school or at school-related events must rely on others' vigilance: preparing the food with clean hands, under sanitary conditions (using optimal hygiene practices), cooking the food properly, and storing it at the right temperature in protective containers.

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*This list was compiled by the authors and supported by resources available through the Centers for Disease Control: <http://www.cdc.gov/Features/dsFoodborneOutbreaks/>.*

people become sick after eating or drinking contaminated food or beverages from a common source, over a limited period of time.<sup>7</sup> The infection could occur at a school function where people shared a meal or treat, or ate contaminated food or a beverage from a common source. Botulism is the one exception to the “two-case rule” in that a single case is considered an outbreak since this disease can cause severe, life-threatening symptoms; its source is often home-canned foods that parents have brought to school for a dinner or party.<sup>8</sup>

What steps can you take to prevent food- and water-borne contaminants from making your students and staff ill?

### Recommendations for Handling Food

Some schools have formal dining halls, while others provide areas where children can eat lunches they bring from home. Food supplied by the school should be prepared by people trained in safe food-handling practices—including the following: (1) careful preparation of food; (2) proper temperatures for cooking and reheating food; and (3) appropriate storage. Every school, including those that only provide areas where students can eat sack lunches, should prepare and distribute food-safety guidelines. Information should include the following areas: cleanliness and safe choices for bag lunches; proper storage techniques; and explicit instruction regarding proper hand washing (both after visiting the bathroom and before eating).

In smaller schools, teachers and other school personnel help prepare meals for students or help set up the area(s) where children eat. These persons must be vigilant to ensure that the food and food areas are clean, sanitary, and free of food-borne and water-borne contaminants (i.e., salmonella, *E. coli*, typhoid, and cholera). Cross-contamination can occur when meat juices or raw eggs come into contact with other foods or with cutting boards, sinks, or countertops. After food-service personnel prepare these foods, the surfaces they touched should immediately be cleaned with disinfecting, antibacterial agents before another food comes into contact with the surface.

The U.S. Centers for Disease Control and Prevention (CDC) has created guidelines that schools must follow to help reduce the risk of food and water contamination outbreaks.<sup>9</sup> This is not a one-person job—everyone must be alert and act promptly to protect the food and beverage integrity at school.

#### 1. Inspect regularly, and consistently maintain a clean school cafeteria, kitchen, and eating area.

During inspections, look for evidence of insect infestations (cockroaches, flies, fruit flies, etc.), as well as rat or mice drop-

pings (indicating the presence of rodents), dirt and grease buildup on the stove and in the oven (as well as on countertops, the refrigerator, and storage areas), and mold and/or mildew on moist surfaces (i.e., the inside of the refrigerator or freezer door). Just because it *looks* clean does not mean that it *is* clean and is not harboring germs or other dangerous contaminants.

To deal with insect and rodent infestations, hire pest-removal professionals, and make sure the cafeteria and eating areas are thoroughly and regularly cleaned. Don't forget the floor, the refrigerator and freezer (inside and out), cooking surfaces, and food-storage areas. After cleaning, all areas should be inspected again by public-health experts, who can give your eating area a safety stamp of approval. All food should be stored in insect- and rodent-proof containers; and salad bars should be covered with a plastic shield. Baked goods, salads, desserts, and fresh foods should not be left uncovered while being served.

### 2. Ensure that food-service personnel and students consistently practice adequate hand-washing techniques.

Food-service staff and others who handle food must be vigilant in their personal hygiene habits, washing their hands after using the bathroom and before handling food, and between the handling of different foods. The Centers for Disease Control (CDC) encourage everyone to practice proper hand washing using soap and hot running water for at least 20 seconds; including washing between the fingers, under fingernails, and the back of each hand.

Similarly, staff should teach children good hygiene. If time is limited, provide them with antibacterial wipes or a hand sanitizer for cleaning their hands.

### 3. Clean surfaces, dishes, and utensils carefully.

Thoroughly clean all food preparation and eating surfaces, dishes, silverware (used for serving and eating), knives, countertops, pots and pans, and equipment used for food preparation, serving, and storing as well as refrigerators, freezers, stovetops, ovens, microwaves, and sinks. To sanitize surfaces, create a bleach solution by adding one tablespoon of liquid bleach to a gallon of water, put it in a spray bottle, and use it regularly on a variety of surfaces—particularly those that come into contact with raw meat, poultry, fish, or eggs.

### 4. General recommendations for handling and preparing food.

- All food-service staff should be required to wear single-service plastic gloves and hair nets and to wash their hands regularly, especially after going to the bathroom. Soap and hot running water should be available near the food-preparation area.

- Employees who handle raw poultry or meat should not also be assigned to work with young children, particularly if the childcare includes feeding and changing diapers. Cross-contamination (both ways) is of grave concern.

- In areas without potable running water, water used for drinking and cooking should be boiled for at least one minute (or treated with tablets) before using. Avoid using ice made from unsafe water, and ensure that bottled drinks served in the dining room and vending machines have sealed tops—if not, they may have been refilled with contaminated liquids.

- If proper sewage disposal and pure water are not available, avoid serving green tossed sal-

#### COOK:

- Thoroughly cook foods at the temperatures that have been proven to kill bacteria and other organisms. The recommended temperature for meat (145°-165° F; 62.7°-73.8° C), poultry (165° F; 73.8° C), and eggs (145° F; 62.7° C);
- Use a thermometer to test the internal temperatures of food;
- When reheating food, bring it to least 165° F/73.8° C;
- Keep hot foods hot (135° F/57.2° C or higher);
- Cook food immediately after defrosting;
- Do not defrost food outside of the refrigerator.

#### SEPARATE:

- Use different containers, dishes, and utensils for raw and cooked foods;
- Wash hands, utensils, and cutting boards after they have been in contact with raw meat, poultry, or eggs and before they touch another food;
- Put cooked meat on a clean platter;
- Separate fruits and vegetables from meats when preparing or storing.

#### CHILL:

- Keep food refrigerated at a safe temperature;
- Refrigerate leftovers as soon as possible;
- Set refrigerator temperature at 40° F (4.4° C); freezer temperature at 0° F (-17.7° C);
- When preparing large amounts of food, separate them into smaller amounts so they will cool more quickly;
- Keep purchased food chilled en-route from the store; carry a cooler in your vehicle, particularly in hot weather.

#### CLEAN:

- The *single most important* method of preventing infectious diseases is proper hand washing—before preparing food, between types of food, after preparation, and after going to the toilet;
- Wash fruits and vegetables under running water;
- Remove and discard outer leaves from lettuce and cabbage;
- Regularly clean and disinfect the refrigerator and freezer;
- Disinfect countertops and sinks regularly, using one tablespoon of bleach to a gallon of water.

#### REPORT:

- Report suspected food-borne infections to the proper authorities.

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\* [http://www.cdc.gov/healthyyouth/foodsafety/pdf/preventing\\_food\\_borne\\_illness.pdf](http://www.cdc.gov/healthyyouth/foodsafety/pdf/preventing_food_borne_illness.pdf).

*ads made with fresh vegetables*; instead, serve only cooked vegetables and fruits or those that have been washed and peeled on site. Generally, water that has been treated with chlorine or iodine is safe to drink. **Experts recommend as safe practice—“Boil it, peel it, cook it, wash it, or forget it”<sup>10</sup>** to prevent the spread of food- and water-borne diseases.

- *Wash all vegetables and fruits carefully, even if they will be cut and peeled before serving.* Cutting and peeling can spread bacteria from the skin to the fruit inside if the item is not thoroughly washed. Washing thoroughly will also remove harmful insecticides and other agricultural pollutants.

- *Separate; don't cross-contaminate.* Even carefully washed and sanitized surfaces, food, hands, and food-preparation utensils can be contaminated by improper handling of raw meats, poultry, seafood, and eggs. If these foods are contaminated, the bacteria can spread to clean surfaces unless the items are kept separate and handled appropriately. Meat products should be stored in designated containers to avoid cross-contamination of other foods. Food-service employees should use separate plates, utensils, cutting boards, and even pots and pans for uncooked produce, meat, poultry, eggs, and seafood, and sanitize surfaces used for preparing these foods before beginning to work with other foods on the surfaces. It is also a good idea to keep raw meats, poultry, seafood, and eggs separate during shopping, transportation, and storage.

- *Be extra vigilant when transporting, storing, and serving food for a picnic or other outdoor event.* Buy sufficient ice to keep foods at a safe temperature.

- *Throw away bulging or leaking cans and any food that smells spoiled.*

## 5. Maintain safe food temperatures for cooking, serving, and storing.

If animal products are used, they may be contaminated with salmonella (and other bacteria).<sup>11</sup> Because of the danger of food poisoning, people should not eat, and schools should not serve, raw or undercooked foods (especially meats, eggs, poultry, fish, or seafood) or foods containing raw eggs or raw (unpasteurized) milk. Ground meats are of particular concern, as bacteria may have been introduced into them at the processing plant. These concerns can be minimized by serving a vegetarian diet at school. Be alert to the presence of raw eggs in purchased foods such as cold soufflés, mousses, chiffons, homemade mayonnaise, Hollandaise sauce, Caesar dressing, homemade salad dressings and ice cream, cookie dough, frosting, etc.<sup>12</sup>

Hot foods must be kept hot (>140° F or 60° C) throughout the serving time; leftovers should be promptly refrigerated at (< 40° F or 4.4° C). Insert a food thermometer into the center of the food to ensure that it has reached a safe temperature before serving, and remains within the acceptable range during storage and while on the serving line. For example, for whole meats, the internal temperature should be at least 145° F (62.8° C); the CDC recommends that ground meats be cooked until they reach a temperature of at least 160° F (71.1° C); poultry

## Is Food Safe to Eat After Its Expiration Date?

Dates stamped on food packages help the distributor determine how long to display the product on the shelf. According to experts, it is not a safety date.<sup>1</sup> However, these dates do help consumers know the time limit by which to buy or use the product in order to ensure optimum quality.

### A “sell-by-date” or “open-dating”

This type of dating is found on perishable products (i.e., eggs, meat, poultry, and dairy products). After the date stamped, while the quality of the food may have deteriorated, refrigerated products should still be safe for a short time if handled properly and kept at 40° F (4.4° C) or below.

### “Closed” or “coded” dating

This type of dating is used on cans and boxes of food with a long shelf life. Canned foods are safe for an extended period as long as they are not exposed to temperatures below freezing or above 90° F (32° C). High-acid canned foods (tomatoes, fruits) will retain their quality for 12 to 18 months; low-acid canned foods (meats, vegetables) for two to five years.<sup>2</sup> If cans are dented, rusted, or swollen, they should be discarded.

### “Best if used by [or before]” dates

Manufacturers use this type of dating to ensure that consumers get the best flavor and quality product. It is not a purchase-by or safety date.

Experts recommend to follow the instructions on products with a “use-by” date. For items with a “sell-by” date or no date, cook or freeze within a reasonable time using the recommendations on the package. Keep in mind that opened cans and jars will spoil sooner than those that remain sealed. Food-borne pathogens can multiply in improperly handled and stored foods before or after the date stamped on the package.

## REFERENCES

1. *Food Safety News* (January 7, 2014): <http://www.foodsafetynews.com/2014/01/update-one-nc-student-still-hospitalized-in-apparent-e-coli-out-break/>.
2. United States Department of Agriculture Food Safety and Inspection Service, “Food Product Dating,” [http://www.fsis.usda.gov/wps/wcm/connect/19013cb7-8a4d-474c-8bd7-bda76b9defb3/Food\\_Product\\_Dating.pdf?MOD=AJPERES](http://www.fsis.usda.gov/wps/wcm/connect/19013cb7-8a4d-474c-8bd7-bda76b9defb3/Food_Product_Dating.pdf?MOD=AJPERES).

should reach 165° F (73.9° C). Eggs should be cooked until the yolk is firm. Food cooked or reheated in a microwave should be heated until it reaches 165° F (73.9° C).

Remember that even foods such as fish that are eaten uncooked should always be kept at a safe temperature. We would caution against eating raw fish or shellfish, which may contain industrial pollutants and heavy metals, and have a significant risk of bacterial contamination.

Thaw or marinate food in the refrigerator or in the microwave, never in the sink or on the countertop at room temperature. Plan ahead because it will take longer to thaw foods in the refrigerator.

Power outages may cause refrigerated and frozen foods to thaw. FoodSafety.gov provides guidelines for dealing with such foods: “Thawed or partially thawed food in the freezer may be safely refrozen if it still contains ice crystals or is at 40° F (4.4° C) or below. Partial thawing and refreezing may affect the **quality** of some food, but the food will be **safe to eat**.”<sup>13</sup> An appliance thermometer in the refrigerator makes it easy to tell whether food is safe. If it reads 40° F (4.4° C) or below, the food is safe and can be refrozen. *When in doubt, throw it out.*

The Food Safety Council issues policies regarding how to deal with food that has remained in the danger zone between 41° F to 140° F (5° C to 60° C) for an extended period, which encourages the rapid growth of bacteria. If the food has been stored within this temperature range for less than two hours, it can be safely refrigerated; if between two to four hours, it should be used immediately; and if it has been kept in the danger zone for more than four hours, it should be discarded.

#### 6. Preventing the spread of communicable diseases and parasites.

Food-service workers with communicable diseases (e.g., *Salmonella*, typhoid, tuberculosis, flu) should not prepare food or pour water for others until they have submitted a doctor’s note stating that it is safe for them to return to work.<sup>14</sup> Many health departments require that restaurant workers with *Salmonella* provide a stool test showing that they are no longer infected before they can return to work.

Several parasites (*Giardia duodenalis*, *Cryptosporidium parvum*, *Cyclospora cayotensis*, *Toxoplasma gondii*, *Trichinella spiralis*, *Taenia saginata* [beef tapeworm], and *Taenia solium* [pork tapeworm]) have emerged as significant causes of food-borne and water-borne illness. These tiny organisms get their sustenance and defenses from other living creatures known as hosts. Many parasites are transmitted from host to host (animal to person, person to animal, or person to person) through the consumption of contaminated

food and water (and even soil), or contact with the feces (stool) of an infected host. In developing countries, “a wide variety of helminthic roundworms, tapeworms, and flukes are transmitted in foods such as: undercooked fish, crabs, and mollusks; undercooked meat; raw aquatic plants such as watercress; raw vegetables that have been contaminated by human or animal feces. Some foods are contaminated by food-service workers who practice poor hygiene or who work in unsanitary facilities.”<sup>15</sup> Parasites can cause symptoms ranging from mild discomfort to incapacitating illness and even death.

Germs and parasites need three things to breed and spread: (1) a source or hospitable environment; (2) a route or a vector (human or animal) to carry the germ or parasite into/onto the victim’s body; and (3) a destination or a host (a human or an animal that is susceptible to infection and illness). Maintaining a clean environment makes it harder for parasites or germs to live and breed. Use the same precautions given in this article for food preparation and storage, and water safety to prevent the

### Danger Zones\*

**In 1 to 2 hours, bacteria that cause food-borne illnesses can grow quickly at temperatures above 90°F (32.2° C), making food unsafe to eat.**

**HOT**

**DANGER ZONE**  
Bacteria grows well in warm temperatures.

**COLD**

Keep hot foods — Hot  
and cold foods — Cold

**Perishable foods kept in the Danger Zone (40° F to 140° F) will encourage rapid growth of bacteria that may cause food poisoning.**

\* University of California, Agriculture and Natural Resources (ANR) Communication Services; *The Lunch Box*: <http://anrcata.log.ucdavis.edu>, publication 8109. Accessed June 10, 2014.

- Food packed in a lunch box should be kept hot—above 140° F (60° C) or cold—below 40° F (4.4° C).
- High temperatures will kill bacteria, and low temperatures will slow the growth of bacteria. Remember—keep hot foods hot, and cold foods cold.

spread of germs and parasites: (1) Boil water or use treatment tablets if the water might not be safe; (2) avoid cross-contamination; (3) follow the guidelines for fresh fruits and vegetables; and (4) practice good hand-washing technique, particularly after touching animals. Other general precautions: (1) Use appropriate sanitation for toileting (do not use ponds or rivers). If it is necessary to defecate outside in the bush, bury the feces, and then wash your hands carefully with soap and water (or use hand sanitizer); (2) avoid walking in dirty puddles and wading or swimming in water likely to harbor dangerous organisms; (3) tell children to avoid areas frequented by animals (i.e., dog parks); (4) remove animal waste promptly from the school grounds.

### Training and Continuing Education for Food-Service Employees

In March 2015, the U.S. Department of Agriculture (USDA) released professional standards for school food-service personnel, which included “hiring standards for the selection of State and local school nutrition program directors, and requires all personnel in the school nutrition programs to complete annual continuing education/training. These regulations are expected to result in consistent, national professional standards that strengthen the ability of school nutrition professionals and staff to perform their duties effectively and efficiently.”<sup>16</sup>

The new rules are intended to ensure that school nutrition professionals who manage and operate the National School Lunch Program (NSLP) and School Breakfast Program (SBP) “have adequate knowledge and training to improve the quality of school meals, reduce errors, and enhance Program integrity.” The USDA’s professional standards include minimum educational requirements for new state directors and school nutrition program directors, and annual continuing education/training requirements for all school nutrition personnel.<sup>17</sup> Effective July 1, 2015, all new personnel (i.e., nutrition managers, nutrition-program directors, full- and part-time nutrition staff, and current personnel) must have the required training. Current staff, who will be grandfathered in, must obtain the required continuing education thereafter. The training must cover such topics as how to prevent food contamination, the proper heating and cooling methods for food preparation and storage, use and care of food thermometers, and adequate cooking temperatures. The food-handler training and continuing-education requirement “is expected for all employees at the local level.” There are various educational, training, and continuing-education requirements, depending on whether the school nutrition person is a program manager, director, or full- or part-time staff.<sup>18</sup>

It does not appear that Adventist schools or other private schools will be required to adhere to or enforce these strict hiring and educational standards, food-handling training, or continuing education/training unless they participate in the NSLP

## Quick Tips for Storing Foods Safely\*

- Freeze or refrigerate perishable foods right away.
- Keep your **refrigerator** at or below 40° F (4° C) and **freezer** at 0° F (-18° C). Check temperatures with an appliance thermometer (generally inexpensive) on a regular basis.
- Use ready-to-eat foods as soon as possible.
- Be attentive to spoiled food. Anything that smells or looks questionable should be thrown out. Mold indicates spoilage and can grow even in the refrigerator. Discard moldy food.
- Be aware that food can make you very sick even when it doesn’t look, smell, or taste spoiled.
- Food that is properly frozen and cooked is safe. Food that is properly handled and stored in the freezer at 0° F (-18° C) will stay safe. Although freezing does not kill bacteria, it does stop it from growing.

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\* U.S. Food and Drug Administration, “Protecting and Promoting Your Health”: <http://www.fda.gov>; \_\_\_\_\_, “Are You Storing Food Safely?”: <http://www.fda.gov/ForConsumers/ConsumerUpdates/ucmo93704.htm>. Accessed September 7, 2015.

or the SBT. But it would be prudent for our schools to adopt, if not all of the hiring standards, at least the ones requiring that each person working with food at school complete food-handling training and annual continuing education to ensure food and beverage safety at our institutions.

A variety of training resources are available: Online courses (*Public School WORKS* has released a new online training course titled “Food Safety for Food Handlers”),<sup>19</sup> in-person events (i.e., conferences and meetings), free webinars, and professional-development articles.

### Establishing a Zero-tolerance Food-Safety Policy

If your school does not have one, you should establish a “zero tolerance” food-safety policy. Be proactive to prevent illness: Hold everyone accountable to detect potential hazards—teachers, students, administrators, school staff, and parents. The old saying—an ounce of prevention is worth a pound of cure—is still sound advice.

In many countries, public-health agencies monitor and regulate the handling and preparation of foods at schools. Most school cafeterias must adhere to state and county regulations. For example, in the U.S., school cafeterias are inspected at least twice a year by the county health department. This requirement contributes significantly to ensuring food safety at American schools. Some experts recommend that school cafeterias be inspected more often—three to four times a year.<sup>20</sup> Following their visits, food inspectors generate reports that become part of the public record, which schools should post prominently on their cafeteria walls. If you have not received a report on the latest inspection, request one, and make it available to students,

staff, parents, and the public.

Administrators should not assume that food handlers and parents know how to safeguard the foods that are prepared at home and brought to school. Policies relating to these matters should be printed and distributed to teachers, staff, and parents, and compliance monitored regularly. This policy should cover: (1) food brought into the school; (2) mandatory continuing education for food handlers and kitchen staff; and (3) at least one trained person charged with monitoring and maintaining food safety.

### School Policy Should Include Explicit Instruction to Parents

Schools can use a variety of methods to inform parents/guardians and constituents of school policy and guidelines. The following guidelines should be relayed to parents several times each year (via mailings, flier announcements sent home with the students, a regular item in the school handbook, etc.): at the beginning of the school year, before the second semester, and again near the end of the school year—one notice is usually not sufficient.

**1. Temperature requirements:** Ask parents/guardians to carefully monitor the temperature of the foods they pack in children's lunch bags and boxes. Hot foods should be kept hot and cold foods cold to prevent the growth of bacteria.

Many kinds of fruits (fresh, dried) and vegetables are safe to consume at room temperature and make great lunch items, as long as they have been properly washed (even the ones that have to be peeled).

**2. Ideal lunch-box foods:** Certain foods are ideal for lunch boxes because they remain safe to eat for an extended period at room temperature. A peanut-butter-and-jelly sandwich makes an ideal lunch food. If peanuts are discouraged or forbidden at

your school because of allergies, a good alternative is almond butter, which although somewhat more expensive, is very nutritious. Another wholesome filling for sandwiches is cheese (or soy cheese) because it can remain at room temperature without spoiling. Some canned foods (e.g., tuna, chili, pasta, vegetarian chicken) are manufactured in easy-to-open cans.

Some sandwiches (e.g., egg salad, tuna, hummus, and some lunch meat), if made the night before, can be frozen and should thaw by lunchtime. Trimmings such as lettuce and tomatoes, if packed separately in a plastic bag, will be kept cool by the frozen sandwich.

**3. Supplying antibacterial wipes:** Even relatively safe foods can become contaminated if handled and stored improperly.

Not only should parents wash their hands before and during the preparation of school lunches, but children also should wash their hands or use hand wipes or sanitizer before eating. The school can recommend that parents include an antibacterial wipe or small container of hand sanitizer in student lunch boxes, or provide these items for students and staff.

### Conclusion

Sustaining a healthful food environment must be a high priority at school. Students who are absent due to illness will miss precious classroom time—which puts them at risk for poor academic performance. When teachers and staff are absent due to illness, this also compromises the academic integrity of the school program. Everyone at school should be able to feel confident that whatever they eat or drink there will not make them sick. Regular food inspections, having everyone practice proper hand washing, ensuring that food handlers cook and store foods at the right temperature, avoiding cross-contamination of eggs/meats and other foods, and maintaining a sanitary environment are a few general rules for assuring the health and safety of the school community. ✍

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## Resources

- Action Plan or Guidelines for Creating and Maintaining a Food-safe School (The Food-safe School Action Guide): <http://www.foodsafeschools.org/PDF/sPPT/Summary%20Book%20final%205-5-05.pdf>.
- National Coalition for Food Safe Schools (NCFSS): Resources for Schools: The Action Kit—online modules, videos, PowerPoints, administration briefing. <http://www.foodsafeschools.org/>.
- *Eating Safely at School:* What education policy makers need to know to do to prevent and respond to food-related illness at school: <http://www.nsba.org/Board-Leadership/SchoolHealth/SelectedNSBAPublications/FoodSafety/EatingSafelyatSchool.pdf>.



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