Emergency Preparedness

Storing and Preparing Food in an Emergency

For the purpose of this bulletin, an emergency will be considered as anything that quickly and unexpectedly disrupts the daily routine and then extends over an extended time period.

In emergency planning, meals and food supply are a “must” to be considered. Basic planning points include the need for each family to keep on hand a supply of non-perishable and shelf stable food items that can be consumed regardless of the power or water supplies.

Foods to Store

Non-perishable food items to keep in stock are items that can be stored indefinitely in proper containers and do not require refrigeration. Examples include baking powder, salt, pepper, and other seasonings, bouillon products, dried peas and beans, dry pasta, instant coffee, tea and cocoa, flour, and rice.

Shelf-stable foods are those that can be stocked safely for an extended time at room temperature in clean, dry, cabinet away from the stove or the refrigerator's exhaust. However, each item will need to be refrigerated after being opened. Many processed and packaged foods are shelf stable. Shelf life is evaluated in terms of the quality of the product after an extended period. According to the Food and Drug Administration (FDA), food can be safe indefinitely from a foodborne-illness perspective; however the quality of shelf-stable food may not be good if it has been on the shelf for an extended period of time. In this case, the "best if used by" date on the label of the product is an indication whether or not the quality of the food is good. Food quality deals with the taste, texture, and nutritional value of food. For example, freezer burn, rancidity, and food spoilage are all quality-related issues.

General guidelines for food storage include:

- Store food in a dry, clean, cool area below 85^{o}F but above 32 ^{0} F
- Keep food covered at all times
- Open food containers carefully to permit closing properly (tightly) after each use
- Seal cookies and crackers in plastic bags, and keep them in airtight containers
- Inspect all food for signs of spoilage before use
- Rotate stock

Rotating stock

For food quality, it is important to rotate the stocked food, or use the oldest foods first. Using a marker, write the date on the outside of the container, or highlight

the “best if used by” date. Place new items at the back of the storage area and older ones in front. Keeping a detailed list of the foods stocked with the expiration dates will assist in the rotation process.

The following food rotation chart assists in maintaining food quality.

Use within six months:	Powdered milk Dried fruit Dry, crisp crackers Potatoes
Use within one year:	Canned, condensed meat and vegetable soups Canned fruits, fruit juices and vegetables Ready-to-eat cereals and uncooked instant cereals (in metal containers) Peanut butter Jelly Hard candy and canned nuts
May be stored indefinitely (in proper containers and conditions):	Flour Vegetable oils Dried peas, beans, lentils Baking powder Instant coffee, tea and cocoa Salt, pepper Rice Bouillon products Dry pasta

Foods to store

Suggested foods to stock are listed below. Not all of these foods are needed; select food depending on your needs and preferences. It is recommended to keep easy-to-prepare and ready-to-eat foods stocked. Build a small supply of food that is part of your normal, daily diet. One way to do this is to purchase a few extra items each week to build a two-week supply of food. Then gradually increase your supply until it is sufficient for three to four weeks.

- Low-sodium crackers*
- Low-sodium pretzels*
- Trail Mixes
- Dry Cereal
- Granola Bars
- Instant cereal
- Instant rice
- Cup-a-noodles, instant pasta, macaroni and cheese ***
- Bouillon
- Canned fruit
- Applesauce
- Canned fruit juice
- Dried fruits (raisins, prunes, apricots, apples, etc.)
- Powdered juice drinks
- Canned vegetables
- Canned vegetable soups
- Canned vegetable juice
- Instant potatoes
- Canned evaporated milk
- Dry milk
- Canned or vacuum sealed meat (salmon, tuna, chicken, turkey, ham)
- Canned chili
- Peanut Butter
- Canned beans
- Dried peas, beans, lentils
- Canned ravioli or spaghetti with meat sauce
- Unsalted mixed nuts
- Protein Bars
- Dried beef jerky
- Powdered eggs
- Drink mixes that are high in protein, vitamin and mineral content, such as protein drinks
- MRE's (meals ready to eat) that do not require cooking, water, or any preparation
- Bottled water (recommend 1 gallon/person/day for drinking for at least one week)**
- Instant coffee, tea and cocoa *
- Condiments: mustard, ketchup, mayonnaise, sugar, salt, pepper, some spices and seasonings, dry creamer
- Oil
- Flour, pancake mix
- Rice
- Cookies, chocolate ***

*Low-sodium crackers and pretzels are important, because salty food tends to make you thirsty. Coffee and alcohol can also increase thirst leading to a faster consumption of your water supply, which presents a problem when little water is available.

**Bottled water is essential for drinking! If it is safe outside, you can rinse clothes in puddles or buckets of fresh rain. Save the bottled water for consumption. Also refer to the section, Storing Water.

*** Comfort foods are beneficial in times of emergency or distress; therefore, you may want to stock specific foods your family. Some of these are especially important to help reduce the stress level of children. Common examples of comfort foods that may be kept on hand are chocolate, macaroni and cheese, instant coffees and teas (for adults), cookies and/or hard candies, Jell-O, and pudding cups.

Non-Food Storage

Non-food items that you may need in order to prepare food during an emergency are also important to consider. The supply list below provides non-food items that may be useful for cooking/eating.

- Manual (hand) can opener
- A good knife
- Waterproof matches
- Aluminum foil
- Re-sealable plastic bags (various sizes)
- Paper towels
- Paper plates, cups
- Plastic forks, knives, spoons
- BBQ Grill, camp stove, pots, pans (thin metal pans for boiling water)
- Fuel for cooking (charcoal, propane, etc)
- Alcohol-based hand sanitizers and/or hand wipes
- bleach, iodine tablets
- Straws
- Cutting board
- Alcohol based hand wipes or gel

Storage containers

Storage containers made of plastic are recommended for safety reasons. Glass and other breakable containers may cause personal injury.

Those foods that are lightweight, compact, and require little preparation are most useful for storing additional foods. Varying the size of the food container is helpful. It is prudent to stock small containers to hold the portions eaten at one time without leftovers, as many canned, pickled or preserved foods need refrigeration after opening.

An advantage of canned food is that the can also will work as the cooking and serving dish. Open the can and remove the label before heating. Do not place metal cans in the microwave.

Storing Water[2]

Amount

It is recommended that a gallon of water per day per person be stored for food preparation and drinking. An additional one-half to 1 gallon per day is recommended for bathing and hygiene, in addition to washing dishes.

Containers for Water Storage

Single-serve portions are ideal. Food-grade plastic or glass containers are suitable for storing water. One-, three- and five-gallon water containers can be purchased from outdoor or hardware stores. Any plastic or glass container that previously held food or beverages such as 2-liter soda bottles or water, juice, punch or milk jugs may also be used for storing water.

Where to Store Water

Clearly label all water containers as "drinking water" with the current date. Store the water in a cool, dry place away from direct sunlight and heat sources.
When potable water is properly stored, it should have an indefinite shelf life; however, it is a good idea to use and replace the stored water every 6 - 12 months.
If you have freezer space, storing some water in the freezer is a good idea. If you lose electricity, the frozen water will help keep foods in your freezer frozen until the power is restored. Make sure you leave 2 to 3 inches of space in containers because water expands as it freezes.

When and How to Treat Water for Storage

In an emergency, if there is not a safe water supply it is possible to purify water for drinking. Start with the cleanest water you can find and treat with one of the following methods:

- Boiling and chlorinating: Water can be purified by boiling. To store boiled water, pour it into clean, sanitized containers and let it cool to room temperature. Then add 5-7 drops, or 1/8 teaspoon, of chlorine bleach per gallon of water (1/2 teaspoon per 5 gallons). Since adding too much chlorine to water can be harmful, it is important to be as accurate as possible when measuring. Only use household bleach that is 5.25 percent hypochlorite and is without thickeners, scents, or additives. Stir or shake the solution to mix it. Cap the containers and store them in a cool, dry place.
- Filtering and chlorinating: Filtering water is possible with a commercial or backpack filter that filters to 1 micron. These are available in sporting good stores, usually in the back-packing area. They are not recommended to clean large volumes of water. It is recommended that 5-

7 drops (1/8 teaspoon) of chlorine bleach be added per gallon of filtered water (1/2 teaspoon for 5 gallons). Stir or shake the solution to mix it. Wait 30 minutes before using the water, or cap the containers and store them in a cool, dry place.

Food Safety Tips[3]

In an emergency, it is especially important to guard against food-borne illness. The following list provides general guidelines.

1. Wash hands before handling food. Alcohol-based hand sanitizers or hand wipe products may be needed.
2. Do not eat foods from damaged or bulging containers.
3. Keep foods clean.
4. Keep cold foods cold and hot foods hot.
5. Do not leave cooked or opened cans of food at room temperature longer than two (2) hours.
6. Using single servings or one-meal size will avoid leftovers, as refrigeration may not be available.
7. Stock foods that require no refrigeration.

Food Safety: Perishables

The main concern with perishables is when electrical power is unavailable. The key to determining the safety of foods in the refrigerator and freezer is their temperature. Bacteria that multiply rapidly at temperatures above 40 F cause most food-borne illness.

- Keep the refrigerator and freezer doors closed. Open the refrigerator as little as possible. Every time you open the refrigerator door, cold air escapes. Refrigerated items should be safe as long as the power is off no more than about 4-6 hours. A full freezer should keep foods safe for about two days; a half-full freezer, about one-day. If foods still contain ice crystals and/or if the freezer is 40 F or less and has been at that temperature no longer than one to two days, food that was safe when it was originally frozen should still be safe. These foods can be refrozen or cooked and eaten. Discard any perishable food that has been stored at temperatures above 40 F for two or more hours, or any food that has an unusual odor, color, or texture.
- Never taste food to determine its safety. Some foods may appear fine, but harmful bacteria and or toxins, which can be tasteless and odorless, might be present.

Food Emergency Consideration for the Person with Diabetes [1]

People with diabetes must consider proper diabetes care when they make emergency plans. The increased stress, irregular eating time, and unplanned

meals can lead to additional problems. Therefore, it is very important to continue as close as possible with the established meal pattern or carbohydrate counting.

Consider storing three days worth of diabetes supplies, which, depending on how you take care of your diabetes, could include oral medication, insulin, insulin delivery supplies, lancets, extra batteries for your meter and/or pump, and a quick-acting source of glucose. All these items should be kept in an easy-to-identify, waterproof container, and stored in a location that is easy to get to in an emergency.

When choosing what foods to store in case of a disaster, be sure to limit sugar/sugar-containing foods. These foods include:

- Jellies, jams, molasses
- Honey
- Syrups (fruits canned in sugar syrup, pancake syrup)
- Frosted cake
- Presweetened or sugar-coated cereals
- Pie, pastry, Danish pastry, doughnuts
- Chocolate
- Custards, pudding
- Gelatin
- Soda
- Cookies, brownies

Carry a fast source of sugar with you at all times:

- 3 glucose tablets
- 1 small box of raisins
- 6-7 small hard sugar candies

Sample Menus

Disaster Scenario: No Power but water is Available

Day 1

Breakfast
Cereal with evaporated or powdered milk
Granola bar
Canned pears
Water/canned juice/drink mix

Lunch
Chicken and vegetable soup (heated if possible on a small camping grill)
Crackers
Canned mixed fruit
Water/canned juice/drink mix

Snack
Dried fruit
Water/canned juice/drink mix

Dinner
Canned chili
Instant potatoes
Canned carrots
Canned peaches
Water/canned juice/drink mix

Snack
Crackers and peanut butter
Water/canned juice/drink mix

Day 2

Breakfast
Instant Oatmeal
Bread* with jelly (packets)
Water/canned juice/drink mix

Lunch
Vacuum packed or canned tuna salad sandwich made with mayonnaise or mustard packets on crackers
Canned pears
Canned zucchini (heated if possible on a small camping grill)
Water/ canned juice/drink mix

Snack
Granola bar
Water/ canned juice/drink mix

Dinner
Vegetable soup (heated if possible on a small camping grill)
Vacuum-packed salmon with crackers
Applesauce
Water/ canned juice/drink mix

Snack
Trail mix
Water/ canned juice/drink mix

*If bread is not available, substitute with crackers and jelly or crackers and peanut butter

Disaster Scenario: No Water, No Power

Day 1

Breakfast
Dry cereal
Granola bar
Canned apple juice

Lunch
Canned or vacuum packed tuna salad (made with mayonnaise packets)
Crackers
Canned pears
Canned juice/Bottled water

Snack
Trail Mix
Canned juice

Dinner
Canned vegetable soup diluted with canned tomato juice
Peanut butter sandwich*
Canned mixed fruit
Canned juice/Bottled water

Snack
Canned fruit
Canned juice

Day 2

Breakfast
Dry cereal
Bread* with jelly (packets)
Canned juice

Lunch
Canned corn beef sandwich* with mustard or mayonnaise packets
Dried fruit
Canned tomatoes
Applesauce
Canned juice/Bottled water

Snack
Granola bar
Canned juice

Dinner
Canned chili
Canned green beans
Canned carrots
Canned mandarin oranges
Crackers
Canned soda/beverage/bottled water

Snack
Unsalted mixed nuts
Canned juice

*If bread is not available, substitute with crackers or another bread product

Disaster Scenario: No Water supply, but power is available

Day 1

Breakfast
Dry Cereal
Granola bar
Applesauce
Canned juice/Bottled Water

Lunch
Chicken and vegetable soup (heated)
Low-sodium Pretzels
Canned pineapple
Canned juice/Bottled Water

Snack
Raisins
Canned juice

Dinner
Canned ham with sandwich spread on crackers
Canned baked beans (heated)
Canned carrots
Canned peaches
Bottled Water/canned juice

Snack
Crackers and peanut butter
Canned juice

Day 2

Breakfast
Dry Cereal
Bread with jelly (packets)
Canned juice

Lunch
Canned ravioli (heated)
Crackers
Canned mandarin oranges
Canned green beans (heated)
Bottled Water/ canned juice

Snack
Protein or granola Bar
Bottled Water/ canned juice

Dinner
Vegetable soup (heated)
Vacuum-packed salmon with crackers
Canned mixed fruit
Bottled Water/ canned juice

Snack
Trail mix
Canned juice

*If bread is not available, substitute crackers

References

[1]http://www.state.nj.us/health/fhs/documents/diabetes_disaster_guidelines.pdf

[2]http://www.ext.colostate.edu/PUBS/emergency/water.html

[3]http://www.ext.colostate.edu/PUBS/emergency/fdsf.html

Additional references used for verification:

http://www.fema.gov/plan/prepare/water

http://www.redcross.org/services/prepare/0,1082,0_91_,00.html#water