



Chapter 2

Fundamentals





Plans

Fundamentals

Where will you and your family be when disaster strikes? What would you do if basic services like water, gas, electricity, telephones or even emergency services were cut off for a long period of time? What would you do if there was a shortage of supplies such as food, water or fuel? **Your emergency plan is *what you will do, how you will do it and who you will do it for and with* when something disastrous happens.**

Whether faced with a personal or family emergency, or a regional or global disaster, the effort you put into family preparedness and disaster planning will play a large role in how well you do in the event. The following information can help you enhance your family's preparedness:

Identify the Hazards

Below are hazards that may occur in our area. Visit the library, contact County Emergency Management or log on to www.fema.gov or www.rvem.org to learn more about each hazard.

- Fire
- Earthquake
- Hazardous Material Spills
- Infectious Disease
- Heat/Winter Storms
- Utility Failure
- Flood

TIP:

More than one event can occur simultaneously, so plan accordingly!

Things to Consider

- What if family members are at work or school?
- Would you be impacted differently if the weather is very warm or very cold?
- How would you get by if utilities are interrupted?
- How would you handle damage to your house or property?
- How would you deal with a blocked driveway or roads?

Identify Steps You Can Take to Minimize or Prevent Impact

- Create plans for family communication, home escape and neighborhood evacuation.
- Learn procedures for Drop! Cover! Hold On!, shelter-in-place and water/utility shutoff.
- Obtain training in CPR, basic first aid, fire extinguisher use and Stop the Bleed.
- Use hazard-resistant construction materials and fire-resistant plants, when possible.
- Learn non-structural earthquake hazard mitigation techniques (secure shelves, breakables, etc.).
- Acquire early warning systems (e.g. smoke and carbon monoxide detectors, Citizen Alert, NOAA weather radio, etc.).
- Consider comprehensive hazard insurance for your home/personal property (e.g. fire, flood, earthquake).
- Develop a neighborhood disaster resource inventory (See page 51).
- Find out about the disaster plan at your workplace, your children's school or childcare center and other places your family frequents.

TIP: Create a preparedness calendar to keep your skills, equipment and food storage up to date.

What Kit Are You Building?

Preparing for each hazard individually is important, but many of the skills and supplies you will need during one event are also useful during another. If you do not yet have a kit, Chapter 4 will help guide you. You may start at with the Grab-n-Go Binder and progress through to 2 Weeks Ready or build them in the way that best suits your family. Remember, 2-Weeks-Ready is the state standard but it is only the foundation for long-term preparedness. Ask yourself these questions to help you on your way:

1. What scenario are you planning for?

2. How many people are you planning for, including those who may not live with you?

3. What skills, equipment and supplies will you need?

4. What skills, equipment and supplies do you already have?

5. What shortfalls can you eliminate?

6. How do you train/maintain your plans?



Water

Fundamentals

If an earthquake, flood, winter storm or other disaster occurs in your community, you might not have access to clean water for days, weeks or even months. Take some time now to store emergency water, filtration and purification supplies, and learn several filtration and purification methods.

WATER - AN ABSOLUTE NECESSITY

You and your family can survive for many days without food, but only a short time without water. Following certain emergencies, there may be significant damage to regional and local water supply systems, and even wells. Having an ample supply of clean water is a top priority in an emergency. Store a minimum of 2 weeks worth of water for each family member and household pet. One gallon per person and pet per day is recommended for drinking, cooking and minimal washing. Consider what you may need for dishes, laundry, and even cleaning wounds! (Remember, larger animals require much more water!) Write the date on the water storage containers and rotate every six months if you don't plan on purifying the water before use.



Outdoor Water Sources

If you need to seek water outside your home, there are several sources. Be sure to filter *and* purify the water before drinking it.

- Rainwater
- Ponds and lakes
- Natural springs
- Streams and rivers



Indoor Water Sources

Don't forget your ice cubes!

Toilet Tank (not the bowl) - contains clean water which can be used directly from tank. Do not use this water if you have added any chemical treatments (cleaners) to the tank.

Hot Water Heater - Be sure electricity/gas are turned off. Open the drain at the bottom of the tank. Start the water flowing by turning off the water intake valve and turning on a hot water faucet. Do not turn on the gas or electricity when the tank is empty.

Never drink or cook with water from a waterbed, pool or spa! They contain an algicide that can make you very sick.

Purification & Filtration

All sources of water, including well water, should be treated after an earthquake until water can be tested by a local water lab. You will need to ensure that your water is safe to drink by filtering and purifying. Please visit www.cdc.gov/healthywater or www.ready.gov/water for more information.

Water Storage

Store your water in thoroughly washed plastic, glass, fiberglass or enamel-lined metal containers. Never use a container that has held toxic substances. If using recycled plastic containers, soft drink bottles are best. You can also purchase food grade plastic buckets or drums. Rotate water every six months unless you plan to purify water upon use.

REMEMBER:

Never ration water! Drink the amount you need today and try to find more for tomorrow.

TIP:

After a flood or earthquake have your well inspected and disinfected by a well or pump contractor.

TIP: During an earthquake, underground pipes and storage containers, as well as the aquifer can be damaged. Listen to your local public health authorities for guidance on using your water, as it may become contaminated.



Food Fundamentals

Our state preparedness standard is “2 Weeks Ready.” Build a two-week supply of nonperishable foods that includes canned, dried, freeze dried, dehydrated and shelf stable selections. Take into account your family's unique needs and tastes. Include foods that are nutrient dense and high in calories for the initial phase of an event. It's also a good idea, during the initial phase to have foods that require no refrigeration, preparation or cooking and little or no water. You may be without power or water for several days, or even months, after an emergency so you will need to consider how you will prepare your emergency foods.



TIP: During, and immediately following a disaster, it will be vital that you maintain strength.

- Eat at least one well-balanced meal per day.
- Drink plenty of water to enable your body to function properly.
- Take in enough calories to enable you to do any necessary work.
- Include plenty of protein.
- Take vitamin supplements to ensure adequate nutrition.

TIP:

Vegetables canned in water provide a small amount of liquid you can use.

Suggested Food Items:

- Ready-to-eat canned meats, fruit and vegetables.
- Canned juices, milk and soup (if powdered, store extra water).
- Staples - sugar, salt, oil, spices, etc.
- High energy food - peanut butter, jam, crackers, granola bars, trail mix.
- Foods for anyone with special dietary needs (infant, elderly, diabetic).
- Comfort food - cookies, candy, cereal, instant coffee, tea, etc.

Food Storage Tips:

- Keep food in a cool, dry place.
- Keep food covered at all times.
- Open food boxes carefully and close tightly after each use.
- Don't forget canned and non-perishable foods for your pets.
- Seal cookies and crackers in plastic bags and keep in tightly sealed containers to help preserve freshness.
- Empty opened packages of sugar, dried fruit or nuts into screw top and airtight containers to protect from unwanted pests.
- Foods in glass bottles and jars may break when a disaster occurs. Buy and store emergency food in non-breakable containers whenever possible.
- Use foods before they expire and replace them with fresh supplies by rotating your stock regularly. Date each item with a marker and place new items in the back of your storage while moving older items forward.
- Remember to store your food in such a way that it's easy to rotate items into your pantry and replace older ones.

Gardening and Seed Storage

You can only store so much food. Consider learning how to garden as part of your skill building by taking classes in your community or from a friend, family member or neighbor.

You can order a large supply of vegetable and fruit seeds that can be stored for years. Buy heirloom seeds so you can harvest the seeds from the crop. Hybrid seeds will not reproduce so you cannot collect seeds for the next planting season.

Shelter Fundamentals

Shelter is a fundamental need during an emergency of any kind. With severe weather being one of our year-round hazards in southern Oregon, having adequate shelter is a year-round concern. Whether you purchase a shelter or learn how to build your own, having everything you need on hand is essential. Keep necessary items for your shelter in your vehicle in the event that you're not at home when disaster strikes.

Sheltering Away From Home

- Make sure your shelter is wind and rain proof.
- How many people will you likely need to shelter - who often travels with you?
- Remember to store sleeping bags or warm blankets along with your sheltering supplies.
- Consider what you would want under you, not just over you, to stay warm and comfortable.
- If you had to stay in your shelter for several days before help arrived, could it withstand the elements?

Sheltering at Home

- Your home is a natural shelter, but what if it was not safe to enter when you got home? This could happen in an earthquake, flood or winter storm due to fallen trees. Is there a location outside of your home, such as a shed or garage, to store some of your supplies?
- Do you have tarps, plastic sheeting, duct tape, etc. on hand to seal a broken window or even a damaged roof due to a fallen tree or downed power pole? It is important to have what you need to keep weather out.

TIP: Your vehicle is a shelter from wind and rain, but not from extreme temperatures. If you cannot run your vehicle due to damage or lack of fuel, it may not help you stay warm or cool. Don't count on your car!

Other Considerations

- Be sure to have lighting that allows you to use your hands. A headlamp or lantern will be more useful than a flashlight while building a shelter.
- Remember, you may be building your shelter in adverse conditions, such as freezing temperatures that make fine motor skills difficult - have warm gloves, socks and a hat in your kit. Extreme heat makes any activity more dangerous due to dehydration. Keep water, a hat, extra sunglasses and a cooling towel on hand. Do not exert yourself during the heat of the day; you will lose a lot of water by sweating.



Using a Tarp

A tarp can make a wonderful shelter. However, a tarp can be very heavy and cumbersome to use. If your tarp doesn't have grommets, you may have a hard time anchoring it. If you use a tarp, you will need rope or paracord. Rope is also quite heavy and often expensive. If you use paracord, its break strength should be at least 750 pounds.

Mylar/Emergency Tent

A mylar tent is lightweight and easy to use. Because of the mylar material they retain heat, which helps keep you warm. They are also reflective, so they are easy to spot for rescue workers. Depending on the brand and thickness, mylar may be easily torn or punctured. Be sure to check on the strength of your particular tent should you go this route.

TIP: Put a tent up in one room of the house and close off the room. The temperature inside the tent may be up to 10 degrees warmer than the rest of the house.



Sanitation & Hygiene Fundamentals

Water, Sanitation and Hygiene (WASH) related emergency preparedness and outbreak response has become one of the most significant and crucial public health issues in recent history. Emergencies can include natural disasters (hurricanes, floods and droughts), man-made disasters (chemical spills into waterways) and outbreaks (infections linked to water exposure after disaster).

Having clean and safe water in an emergency situation to meet drinking, sanitation and hygiene needs is essential for every person.

Learn basic water filtration and purification skills so that you are always ready to prepare water for cleaning, cooking and drinking.

You may not have power during a long-term event. Keep supplies on hand to boil water on an outside camp stove or fire pit.



Hygiene

Hand washing and basic personal hygiene are critical for staying healthy during any type of event. It helps stop the spread of disease and keeps us healthy, allowing for medical professionals to focus on the critically injured. While hygiene is of the utmost importance, it can be difficult during a flood or earthquake. Without clean water, good hygiene, dental hygiene and wound care is impossible.

Show me the Science

Hand washing reduces the amount of all types of germs, chemicals, pesticides and heavy metals on hands. Alcohol-based hand sanitizers can quickly reduce the number of microbes on hands in some situations, but sanitizers do *not* eliminate all type of germs and are not effective on visibly dirty hands.

When hand washing is not available, use a hand sanitizer that is at least 60% alcohol. Sanitizers with less than 60% alcohol merely reduce the growth of germs rather than kill them outright.

- Sometimes bathing or showering may be done with water that is not safe to drink. Be sure it does not get into your eyes or mouth. Water with chemicals in it should not be used to shower or bathe.
- Store some mouthwash in the event your water service is interrupted. You can rinse your mouth with it rather than water.
- If you or someone with you has an open wound, it should **never** come in contact with dirty water. Dirty water may cause an infection and drastically increase the need for medical intervention. (For more information on wound care, see *First Aid* on pages 28-30.)

TIP: Liquid soap can burst and solid soap can melt if left in a hot vehicle during summer days. For a light-weight, easy to pack soap, consider sheet soap. It comes in a small, reusable container with 50-250 sheets and can be found in most camping stores for just a few dollars.



Sanitation & Hygiene Fundamentals

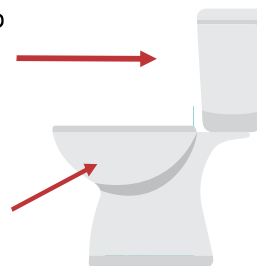
In a disaster, plumbing may not be usable due to disrupted water and sewer lines. Each person in your household should know how to properly dispose of human waste (i.e. a two-bucket system - see below) and sanitize all necessary items in order to avoid infection and spread of disease.

TIP:

If the water is off but the sewer lines are unaffected, toilets can be flushed with stored water. Save your drinking water and opt for dirty water to flush!

Pour water in holding tank to flush. This method requires more water since the tank must be full to flush.

Throw water with force in bowl to flush. This method works by force and requires less water.



Emergency Supplies Recommended

- Two five-gallon plastic buckets with tight fitting lids or five-gallon metal containers with tight fitting lids should be stored as makeshift toilets. A seat can be fashioned from a pool noodle cut length wise and placed on the rim of the bucket, or a toilet seat for a bucket can be purchased. Portable toilets can be obtained from a camping supply store.
- Keep a supply of plastic liners (5-6 gallon size) to line your buckets.
- Store toilet paper, disinfectant spray, hand sanitizer, deodorizer tablets and air fresheners nearby.
- One or more large metal covered garbage cans should be available to contain waste after it has been sealed in plastic. If you don't have large cans available consider storing several five-gallon buckets for disposal.

Four Types of Surface Disinfectants

- If water is available, it is best to use a solution of one part liquid chlorine bleach to ten parts water. (Don't use dry bleach, which is caustic and not safe for this type of use.)
- HTH, or calcium hypochlorite, (Chlorine), is available at swimming pool supply stores. HTH is intended to be used as a solution with water. It can be mixed according to the package directions and then stored.
- Portable toilet chemicals, both liquid and dry, are available at recreational vehicle supply stores. These chemicals are for use with toilets that are not connected to sewer lines. Use as directed.
- Powdered, chlorinated lime is available at building supply stores, which can be used dry. Be sure to get chlorinated lime and not quick lime, which is highly alkaline and corrosive.

Disinfecting Surfaces With Bleach

- First, wash surfaces with soap and warm, clean water to remove dirt and debris, if possible.
- Next, sanitize surfaces with diluted regular, unscented household bleach that is dye free.
- Never mix bleach with ammonia or any other cleaner.
- Wear rubber or other non-porous boots, gloves and eye protection.
- Try not to breathe in product fumes. If using indoors, open windows and doors to allow fresh air to enter.
- Check the CDC website for recommendations for cleaning and sanitizing food cans and surfaces. Water-to-bleach ratios will be different for different surfaces and applications. Print materials and charts for each and store them in your emergency kit - you may not have access to the internet after a large event.

TIP: If you elect to build a latrine, be sure you know the necessary distance between the pit and any nearby water sources and the distance above the groundwater table. The hole should be 2 ½ feet deep, 1 foot wide and 4 feet long. Soil removed from the trench should be placed nearby to shovel after each use. Cover the trench completely when the waste and soil reach within a foot of the top.

First Aid Fundamentals

Accidents can happen anywhere, at any time. If you witness an accident or are the first person to arrive when one has happened, there are a few basic principles to follow to protect yourself and the patient:



- **Call 911 from where you are standing**

Identify where you are, what seems to have happened and how many people you can see who may need help.

- **Survey the Scene**

Remember, you cannot help if you are hurt. Make sure that whatever happened to the patient doesn't happen to you too. Take a few deep breaths and look around. Look for hazards like downed power lines, hazardous materials or fires, and pay extra attention on roadways. Traffic around accident scenes is very dangerous.

- **Primary Patient Survey**

If it is safe for you to approach the patient, begin by calling out as you walk up. If they do not respond as you approach, touch them and call out again. A person who responds to you by talking or crying is conscious, has an open airway and is breathing adequately.

- **Perform CPR**

If they do not respond, this is likely a life-threatening situation. Remember that for every minute of delay in starting CPR, a patient's chance of survival decreases 10%.

Check quickly for breathing by placing your ear near the patient's mouth and looking down their chest for movement. If the patient is not breathing at all, or you see gasping, prepare to do CPR. Ask someone to look for a nearby Automated External Defibrillator (AED) if you are trained to use one. Make sure that 911 has been called if you didn't do it yourself.

CPR is most effective when the patient is on their back on a hard, flat surface. It is a good idea to move the person out of a cramped space like a vehicle or small bathroom.

If you have been trained to do CPR, do what you know. If not, perform hands-only CPR by placing one hand on top of the other in the center of the patient's chest, over the breastbone and push hard and fast at a rate of 100 beats per minute (many people think of the song "Stayin' Alive", or "Another One Bites the Dust"). Push to one third of the depth of the chest and allow for full recoil. You may feel popping and cracking: **this is normal**. Continue for as long as you are physically able, or until help arrives.

CPR can be a lifesaving intervention, especially when it is done quickly and with an AED. Unfortunately, not everyone can or will be saved, even with the best possible care. In a disaster, you may need to stop doing CPR if help is not able to reach you, and you become exhausted and there is no one else who can rotate in, or the situation becomes too unsafe.

What Is Shock?

Shock is what results when injury, trauma or illness is very severe, and the body is losing its ability to compensate. Oxygen and nutrient-carrying blood is not reaching body tissues like the heart, brain or lungs, and the tissue is becoming damaged. This may happen because of loss of blood, a body-wide infection (sepsis), anaphylaxis, psychological trauma or other possible cause. Good basic first aid will require recognizing and caring for potential shock.

First Aid Fundamentals

What Is Shock continued...

Shock may look like one or more of the following:

- Anxiety, restlessness or a feeling of impending doom
- Weakness or fatigue
- Rapid heart rate or breathing
- Nausea or vomiting
- Shaking or shivering uncontrollably
- Blue or gray color in the lips, gums or nailbeds regardless of complexion
- Confusion or disorientation up to unconsciousness



Handle the patient gently and reassure them. Keep communications calm, supportive and ongoing. Keep them from moving if you suspect a head, neck or back injury. First aid for shock is about supportive care.

- Keep them warm; protect them from extreme ground temperatures.
- Help protect the airway by putting them in the recovery position if they are unconscious. (Someone on their back is in danger of choking.)
- Do not let them eat or drink, to reduce the risk of vomiting.

Recovery Position



Bone Fractures

Two types of fractures:

- Closed Fracture: a break or crack in a bone that does not puncture or penetrate the skin.
- Open Fracture: a break in the skin caused by a protruding bone, or an open wound in the area of the fracture. Open fractures are more serious than closed fractures.

Some symptoms of a fracture:

- The injured part appears deformed.
- Pain is present when attempting to move the part.
- Absence of feeling when touched.
- Bluish color and swelling in the area of the injury.

TIP: You are the first responder if you are first on the scene!

To treat a fracture:

- Splint the patient before moving.
- Pad the splint and place it so that it supports the joint above and below the fracture.
- Immobilize a leg fracture by splinting the fractured leg to the unbroken leg if no other materials are present.
- If the limb is grossly deformed by the fracture, splint it in place. **Do not try to straighten it.**
- Elevate and use indirect (not on skin) ice packs if available.

Caring for Wounds

If you see a wound that is spurting or pulsating large amounts of blood, immediate action is needed. In most cases, applying external pressure with your hands to the bleeding vessel will be enough to stop the bleed. If you have a tourniquet and have been trained to use it, do so. (Wear gloves to protect yourself from all bodily fluids.)

- For wounds to the limbs, take clean soft material, preferably gauze, and press it deep into the wound. Apply pressure with both hands, leaning into the wound with your body weight - do not stop. Do not remove or move the dressing - you want the blood to clot.
- For gaping wounds or wounds to the shoulder or groin, pack clean soft material like a roll of gauze in to fill the wound and hold pressure using both your hands and body weight. Do not remove or move the dressing. You can always add more, if needed. Leave a "tail" so that emergency personnel can easily locate the end of the gauze.

First Aid Fundamentals

First aid is the immediate care given to a person who is injured or ill. Because life-threatening situations occur, everyone should know how to provide basic emergency care to keep an injured or sick person alive and safe until they can receive care by emergency responders or hospital staff.

The best way to become comfortable with first aid is to take a class through the American Red Cross, a community college or other reputable provider. It is a good idea to keep a reference book in your disaster kit to help you make decisions if you are not able to access emergency medical services or medical care as quickly as you normally would.

For any situation that appears to be life-threatening, it's important to call 911 and get help on the way as soon as possible.

The primary purpose of first aid is to:

- Manage injuries and care for life-threatening situations.
- Protect the patient from further injury and complications.
- Arrange transportation for the patient to a medical facility.
- Make the patient as comfortable as possible.



Call 911 if:

- The patient is not conscious, is confused (cannot remember their name, location or recent events), or is losing consciousness.
- The patient is not breathing normally or is having difficulty breathing.
- The patient is experiencing chest pain, pressure or sudden, severe back or jaw pain.
- The patient has persistent pressure or pain in their abdomen.
- The patient has had a seizure (especially if it lasted several minutes or there was more than one).
- The patient is vomiting or passing blood.
- The injury might be causing internal bleeding.
- The injury might include broken bones.
- The patient seems to have been poisoned.
- The patient has one sided weakness in their face or body, slurred speech or difficulty speaking.
- The patient has sudden and severe headache.
- The patient has head, neck or back injuries.



TIP:

It is important to note that during a large-scale event, such as the Cascadia Subduction Zone earthquake, emergency services may not be available for an extended period of time. Everyone is a first responder! Get training so you can be the help until help arrives.



Communications

Having a communications plan is one of the most important pieces of your emergency preparedness plan. If communications are down in your area, each person in your plan should know:

- Who the out-of-area contact is for the family; their phone number should be written down and memorized.
- What information to share with your contact:
 - Where you are (address or name of location).
 - How you are (uninjured, hit my head, broke my leg, I'm panicking).
 - Where you are going or if you are staying in place (if leaving the current location, include the route you will take if it applies).
 - The meeting location if home is not an option (due to distance, river crossing, etc.).
- To send a text rather than calling if you have a cell phone; a text will often work when a voice call won't.

Your out-of-area contact should know to text (if possible) the information they receive to the other members in your communications plan. Relay updated information at designated times (5 minutes before/after the hour).

Family Contact Card

Name _____	Cell _____
Home _____	Work _____
Name _____	Cell _____
Home _____	Work _____
Name _____	Cell _____
Home _____	Work _____
Out of area contact _____	
Phone 1 _____	Phone 2 _____
Family meeting place _____	

TIP: Cordless phones do not work when the power is out. If you have a land line telephone, ensure that it does not require power to operate.

TIP: Power cell phones off between scheduled communication times.

Family Contact Cards are an important tool to help your family members stay in touch with each other during an emergency. Planning ahead can reduce the time it takes to contact each of your family members during an emergency. While it is important to know where everyone is and whether or not they are safe, it's also important that everyone understands what their role and responsibility is during a disaster.

Sometimes during an emergency, local phone circuits are busy but calls can still be made to other area codes. It may be easier for you to reach someone out of the area, even in another state, than to reach someone in the same city. Designate a friend or family member who lives out of the area to collect and pass information between your immediate family members or anyone else in your communications plan.

Designate a safe place for your family to meet in case you are unable to contact each other. If all communications are down, plan for each family member to go to the designated meeting place to wait for others. If you cross a waterway for work or leisure activities, choose a location on both sides of the waterway.

The Family Contact Card is located above. Make copies and fill out cards for each member of your family to carry with them at all times. Make sure caregivers for younger children have your Family Contact Card information as well. If a disaster occurs during work or school hours, it's critical that everyone, including children or their caregivers, knows who to contact and where to meet. Be sure to keep cards updated as information changes.

TIP: If you are traveling, tell someone where you're going, when you're leaving, the route you are taking and the expected arrival time.

TIP: If applicable, have a meeting place on both sides of the river, which may not be crossable after a large earthquake.

TIP: If your cell phone is lost or damaged, you will need to have a backup for remembering phone numbers. Having the information written down somewhere is a good idea.