HEALTH RISKS AFTER A DISASTER

PLEASE NOTE:

These educational materials are provided by the Emergency Preparedness/Public Safety (EPPS) Committee. They are an effort to address questions Charbonneau residents may have about the best ways to be prepared for emergency events of all kinds. They focus on ways to initiate, review, or improve your emergency readiness, often structured around key actions like creating kits and communication plans. Key components involve planning for two weeks of self-sufficiency, gathering essential supplies, and identifying risks.

Emergency preparedness is crucial for saving lives, minimizing damage, and ensuring rapid recovery from natural or man-made disasters. **By establishing plans, training, and stockpiling supplies, individuals and organizations can significantly reduce fear, injuries, and financial loss while easing the strain on emergency services.**

Person to person help is available to you through our network of HOA EPPS Captains. On the reverse of this page, you will find a list of those HOA captain leaders. They stand ready to answer your questions. EPPS meets the 4th Thursday of each month in the Lewis Room of the Activity Center at 2:30pm; you are welcome to join us! Have an interest in helping in the community? We can always use more volunteers!

See Page 3 of this notebook for links to the Charbonneau website where you may print out specific information from this notebook that we hope you find useful.

PLEASE DO NOT RMOVE FROM THE LIBRARY

CHARBONNEAU EMERGENCY PREPAREDNESS – KEY CAPTAINS (2026)

ARBOR LAKE TOWNHOME ASSOCIATION (ALTA): 258 HOMES
Spencer Groshong: srgroshong@comcast.net, 541-971-3250
Ron Prewett: ronprewett@sbcglobal.net, 503-804-4323

CHARBONNEAU HOMEOWNERS' ASSOCIATION (CHOA): 223 HOMES
Marilyn Ellwood: ellwood4292@comcast.net, 503 799-8444.

CHARBONNEAU GREENS: 48 HOMES
Sandy Batte: sebatte@gmail.com, 503-936-0292
Leslie Walker: lesonred2@gmail.com 503-789-4835

CHARBONNEAU VILLAGE CONDOS: 60 HOMES
Julie Beaton: jmbeaton2@comcast.net, 503-481-5172
Linda Wanless: l.wanless@comcast.net, 503-234-3864

COUNTRY CLUB ESTATES: 224 HOMES
Pat Hickman; phickman@comcast.net 503-887-9015
Myrinda Head: head-out@comcast.net 707-391-5450

EDGEWATER ESTATES: 44 HOMES
Kathy Budiao: katsbooks1@gmail.com 503-806-7165
Judy Winther: judy.winther@comcast.net 818-424-8656

FAIRWAY VILLAGE CONDOS: 20 HOMES
Karen March: ksmarch53@gmail.com , 425-753-4542
Julie Webb: jewelskat@msn.com 503-4532980

FOUNTAIN LAKES/FAIRWAY ESTATES: 94 HOMES
Pete Crosby: crosbago512@gmail.com, 503-319-5125

FRENCH PRAIRIE CONDOS: 150 HOMES
Jan Newton: janet.newton184@gmail.com, 503-851-9639
Kellie Skenandore: kellies223@gmail.com 541-908-2860

LAKESIDE: 41 HOMES
Mike Brown: micsan2@comcast.net, 503-694-8261

LOUVONNE: 67 HOMES
Nadine Kincaid: Nadine.kincaid@gmail.com, 503-880-9962
Tracy Meyer: sparky2340@gmail.com, 503-998-4397

RANGE: 42 HOMES
Ed Burnside: meburnside3@gmail.com, 310-339-9566 C

VILLAGE GREEN I: 21 HOMES
Pam Jacobs: pam@southlakechurch.com 503-327-6993

VILLAGE GREEN II: 19 HOMES
Bob Nichols: bobnichols1966@gmail.com 925-876-7201

VILLAS ON THE GREEN: 6 HOMES
Julie Smith: julie.smith19@comcast.net, 503-740-3887

You may download and print pages from this binder by going to the Charbonneau website:

charbonneaucountryclub.com

At the top of the home page, hover over “Community Safety and Resiliency” A drop-down menu will appear, click on “Emergency Preparedness” and scroll down the page to find the box that has the name of the binder from which you want to print information. Click on “LEARN MORE” to open the pages.

OR You can scan this QR code with your smart phone and it will take you directly to the CCC webpage where you will find the box with the binder information.

You may choose to download the pages to your computer or simply print the pages you are interested in. EPPS suggest that you print materials to have them on hand and easily accessible.

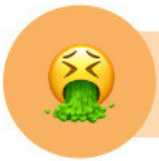
HEALTH RISKS AFTER DISASTER

THE CHAIN REACTION OF POOR SANITATION

1. INFRASTRUCTURE COLLAPSE

Utilities like water & sewage systems are destroyed, leaving communities without basic services.

2. WATER CONTAMINATION



Untreated waste mixes with floodwaters and drinking sources, spreading pathogens.

3. DISEASE EPIDEMICS

Rapid spread of waterborne illnesses such as cholera, typhoid, and dysentery occurs.

4. OVERWHELMED HOSPITALS

Medical facilities become flooded with patients, exhausting resources and personnel.

5. HINDERED RECOVERY

Widespread illness prevents active participation in rebuilding, prolonging the crisis.

Satellite Industries
www.satelliteindustries.com

Why Sanitation is the Unsung Hero of Disaster Response

When disaster strikes, everyone talks about food, water, and shelter. But there's another hero working quietly behind the scenes – one that doesn't get the headlines but literally saves lives. **Portable sanitation for disaster relief** is that unsung hero, preventing secondary disasters from spiraling out of control.

Think about it: when hurricanes flood sewage systems or earthquakes crack water mains, where do thousands of displaced people go? Without proper facilities, a health crisis becomes inevitable. That's why smart operators know that portable sanitation isn't just helpful during disasters – it's absolutely essential.

Mitigating Critical Health Risks

When infrastructure crumbles, the clock starts ticking toward a public health nightmare. Broken sewer lines, contaminated water supplies, and power outages create the perfect storm for disease outbreaks.

Without proper facilities, people have no choice but to use unsafe areas for basic needs. This quickly leads to **contamination of water sources** and the surrounding environment. The result? Waterborne diseases like **dysentery and cholera** spread rapidly through affected communities.

Scientific research on how disasters impact public health consistently shows that broken infrastructure becomes the primary driver of **pathogen spread** after disasters. Germs causing diarrhea, respiratory infections, and other serious illnesses multiply quickly without proper hygiene facilities, overwhelming medical facilities that are already stretched thin.

Prepping for Basic Emergency Sanitation

Written by Kylene Jones

Proper sanitation during a disaster is a critical component of preparedness. Frequently, there are more deaths following a disaster due to poor sanitation, than lives lost in the initial event. The earthquake in Haiti is a classic example as it was followed by a horrific cholera outbreak which killed thousands of people and hospitalized hundreds of thousands.

Just how do you prepare for basic emergency sanitation? We will review in detail each of these six areas of focus to ensure you will be ready to meet the basic sanitation needs of your family in an emergency.

1. **Personal sanitation supplies** – What supplies do you need to stock to meet basic sanitation needs?
2. **Shower/bathe** – How will you be able to shower or bathe when the water supply is limited?
3. **Disposal of human waste** – If sewer systems fail, how are you going to dispose of human waste without creating a health hazard?
4. **Disposal of solid waste** – What are you going to do when the garbage man stops taking away your trash each week?
5. **Laundry** – How will you clean your clothes without a working washing machine and dryer?
6. **Pest and rodent control** – What can you do about the increase in insects and rodents during a disaster?

Stay with me! I know this is a lot to think about. We are going to break each one of these down into manageable pieces and give you some great ideas to help you be successful in your preps. You don't need to run out and purchase everything! Just decide what will work best for you in each category and systematically accomplish your goals.

Personal Sanitation

It is vitally important to maintain good hygiene during an emergency. Use high standards of cleanliness including; brushing your teeth, washing your face, combing your hair, showering/bathing, or a sponge bath if water is scarce.

Remember to wash your hands! Good personal hygiene will help prevent the spread of disease and help maintain personal health and comfort.

You may want to consider coming up with a hand washing station in the event your household water supply is disrupted. If the sewer system is working, you can set it up right at your kitchen sink. We use this simple set-up for camping so we are familiar with using it. Notice that we catch the water in a basin to recycle.

Stock up on Basic Sanitation Supplies

We recommend a one year supply of basic sanitation items stored in your own home. You can make it through almost any disaster situation with this amount, as well as saving money by stocking up when items are on sale.

Track your actual usage of supplies by marking each container with the date it is opened. When the container is empty, record how long it lasted. Individual usage varies greatly. This will give you a fairly accurate rate of consumption and allow you to correctly calculate how much you need for a one year supply.

Be sure to rotate your supplies to ensure they are kept fresh and nothing is wasted. This is a list of the basic supplies we stock in our home.

Toilet paper is a high priority on our sanitation supply list. When times get tough it may be worth its weight in gold. The average American uses 100 single rolls of toilet paper each year. We have found that 50 double rolls take up less space in storage.

We include 8” x 8” flannel cotton squares to be used as reusable toilet paper. It sounds rather disgusting but stay with us for a minute. A long term disaster may require a little adaptation.

The cloth squares are used in place of toilet paper, then washed with a disinfectant, and hung out to dry. It is important that the cloth is absorbent, but dries quickly. Flannel squares is a much nicer option than newspaper, leaves or corn cobs.

A cleansing bottle, such as Peri-Wash, can be used to spray off and then pat dry with a cloth. Similar to a bidet, only portable. Store a bottle for each member of the family so they will not have to share.

Baby wipes are a staple in our home even now that our children are older. They make cleaning up without running water much easier. We purchase baby wipes by the case and they store well. If they happen to dry out, we just add a little water to the package.

Soap can help prevent the spread of disease. Bar soap is relatively inexpensive and has an indefinite shelf life. One bar of soap per person, per month, is a safe estimate.

Liquid hand soap may reduce the spread of disease better than bar soap. When several people share a bar of soap it is possible for it to harbor bacteria and dirt. Liquid soap dispenses a clean squirt of soap each time. Remember that liquid soap tends to be used up a little more quickly, so we store one 13 ounce bottle per person per month. Shower gel amounts vary individually.

Hand sanitizer is an effective way to kill germs without water. If your hands are visibly dirty, hand sanitizer may not work effectively. Most have a high alcohol content and dry out your hands. Remember it kills the germs, but it does not clean your hands. Nothing cleans and disinfects like briskly rubbing your hands together with soap and water for 20 seconds.

Shampoo, along with conditioner, is nice to have. Actual usage depends on the person and the quality of the shampoo. We plan 15 ounces of good shampoo per person per month.

Toothbrushes, toothpaste, and dental floss are important for keeping your teeth clean and healthy. A disaster is a horrible time for a toothache. Thoroughly brushing teeth with just water is actually highly effective. Baking soda and water can substitute for toothpaste in a pinch, or even dipping a wet toothbrush in kosher salt will work.

Deodorant may not be necessary, but it sure can make it easier to live together in close proximity. One stick of deodorant lasts about one month for our teenagers and closer to a year for Jonathan.

Dishwashing liquid has a long shelf life and many valuable uses. You may be washing dishes by hand so be sure to plan for much more than normal if you use a dishwasher.

Original Dawn dishwashing liquid is our personal favorite. It is mild enough to use as a shampoo substitute and can lubricate squeaky hinges nicely. Mix undiluted Dawn half and half with vinegar and you have an amazing bathroom and shower cleaner. Three drops in a gallon of water with a little vinegar make the perfect window cleaner. Mix a tablespoon of soap in two quarts of water and spray in the garden to kill some varieties of garden pests, including squash bugs and aphids.

Laundry detergent is easy to make, but we still prefer to purchase it. Our family goes through one 146 load container of liquid laundry detergent every six weeks. We need 9 containers of laundry soap to last us for a year.

Disinfectants are used to destroy microorganisms before they can make you sick. They do not have to cost a lot of money. Store whichever kinds of disinfectants you prefer. Disinfecting wipes are quite handy and are a staple in each of our bathrooms.

Alcohol, vinegar, chlorine bleach, and calcium hypochlorite are excellent options. Alcohol and vinegar have an indefinite shelf life and are good disinfectants. They are not quite as effective as chlorine bleach, however, they are safer to use and will not discolor items.

Chlorine bleach has a shelf life of only six months, at which time it begins to lose its disinfecting power. Calcium hypochlorite powder can be made into a stock solution to provide fresh bleach as needed (see this post for directions). It has a shelf life of around ten years.

Disposable gloves are invaluable when it comes to protecting yourself against disease. They are

relatively inexpensive and will store for several years.
We stock one-size-fits-all latex-free vinyl gloves (commercial work gloves) for household cleaning and dirty work. We also keep a supply of medical exam gloves in sizes that fit each individual in our family. These are used for first aid and jobs that require gloves that fit well. Additionally, we keep several pairs of thick rubber gloves for messier tasks.

Garbage bags are another critical basic sanitation item. Buy quality to avoid messy accidents. We keep a supply of contractor-grade black garbage bags, standard black garbage bags, kitchen garbage bags, and plastic grocery bags. Each bag has a different use and we have found all to be important. Stock a few rolls of duct tape to help hold bags in place when needed.

Feminine products such as sanitary napkins or tampons are an important staple. In addition to their use for menstruation, disposable sanitary pads are extremely valuable in a first aid kit as a dressing for heavy bleeding.

Cloth menstrual pads are reusable and may come in handy during an extended disaster scenario. These washable pads are made from several absorbent layers and may have a waterproof lining. Patterns are available on the internet or go to gladrags.com, sckoon.com, or lunapads.com to see reusable products for sale.

Disposable diapers for infants as well as adults. It doesn't hurt to stock cloth diapers, cloth wipes, diaper pins, and plastic pants just in case. They may prove quite valuable. These items would be great barter items if you no longer need them.

This is the list for our family. Your family will need similar items or some that are unique. Spend a few minutes and make notes on what your family may like to have if you are unable to go to the store.

Stock up by purchasing a few extra items each time you go to the store. You will be amazed at how quickly you will be able to get a year supply of basic sanitation items.

Shower/Bathe

A nice warm shower can make life worth living. Even when the power is out and water is scarce, it is possible to be clean and comfortable with a little creativity and planning.

Consider these options for makeshift showers. Be sure to place a large tub or container under the person showering to catch the water to recycle. This water can be used for flushing toilets, the first stage of washing clothes, or to water plants.

Practice with your alternative shower or bath methods to ensure it will work for you. Here are a few suggestions:

Gravity solar showers are inexpensive and can provide a much needed warm shower by simply exposing the black shower bag to the sun for a few hours. The five-gallon capacity solar showers may hold enough water for two quick showers. The showerhead on ours is fine for cleansing a body but is not the best for washing shampoo out of long hair.

Pressure garden tank sprayers can provide a refreshing shower. The tank may be set in the sun to get warm (black tanks work best) or the water can be heated before filling the tank.

There are different nozzles available. Some work better for showering than others. It is a little challenging to wash all of the shampoo from thick hair with the tank sprayer, but it makes a great body shower while conserving water. Sporting goods stores carry nice pressure sprayers that are specially designed for showers.

Sponge baths are a good option when water is scarce. Simply wipe your entire body using wet washcloths and water. Baby wipes are a great way to take a sponge bath. Wipes are relatively inexpensive and have a long shelf life. They can be discarded after use, preventing additional laundry.

Regular bathing, even with baby wipes, can prevent the spread of germs, make you more pleasant to be around, and prevent sores from developing.

Human Waste Disposal

Mother Nature's call cannot be put off for long, regardless of the nature of the emergency or crisis. In fact, these circumstances may actually make the call more frequent and intense.

Feces are a dangerous substance and can spread deadly diseases. Urine, however; is generally safe. When possible, separate urine from feces to reduce the amount of hazardous material. If you are using a bucket toilet, consider having one for urine and another for feces.

Each person generates approximately five gallons of human waste each week. This waste, if not managed properly, becomes a source of odor, illness, disease, and other problems.

Never throw human waste on the open ground. If no other alternative is available, bury it in deep trenches and cover with at least 2-3 feet of soil. Make sure to avoid burying raw human waste where there are high water tables. It can contaminate the water supply and spread disease.

Consider the alternative toilet options listed below, make a plan, and get the supplies needed to ensure you can safely manage the waste your family creates.

Luggable Lou or bucket toilet may be a good option for a lightweight portable toilet that you can grab along with your survival kit. Take time to actually sit on a bucket toilet to determine if it is stable enough to support your size and weight. Most are not designed to accommodate large or tall people.

The thought of sitting on a bucket toilet full of stinky contents is bad enough; but the image of falling over while sitting on it, splashing the contents all over, makes us cringe.

Keep basic supplies inside the bucket so that it is ready to go – toilet paper, baby wipes, garbage bags, disinfecting wipes, feminine products, spray deodorizer, and a sanitizing chemical.

Line the bucket with a plastic garbage bag. Mix one cup liquid bleach, or an appropriate amount of another sanitizing chemical, with two quarts of water and pour into the lined bucket. Add a little more disinfectant after each use. Change the bag when it is one-third to half full. Carefully tie the top and place in a larger lined can. Close the lid after each use to control odors.

This will definitely work for an emergency, however, the smell is offensive and it is not our favorite option. ChemiSan powder, Bio-Gel Waste Gelatin, Poo Powder or WAG bags are very nice, but pricey solutions. The powder instantly solidifies to prevent messy spills and controls germs and odors.

A WAG bag fits inside the bucket and is ready-to-go with Pooh-Powder. It may be used multiple times. The bag is engineered to break down in 6-8 months to make disposal environmentally friendly.

Permanent Port-a-Potty is a great option if you can stay in your home, but do not have running water or sewer. Your household toilet can be easily converted to a permanent port-a-potty in an emergency and provide a familiar, inexpensive toilet option.

• Turn off the water supply to the toilet tank.
• Empty the toilet bowl and lift the lid and seat.
• 

Place a garbage bag in the bowl and duct tape the edges around the back and sides of the bowl.
• Use the toilet as usual.
• Pour a small amount of disinfectant into the bag after each use to help prevent the spread of germs and disease. Do not use strong disinfectants which might compromise the plastic bag. You may want to add sawdust, kitty litter, soil, or Poo Powder to solidify liquids.
• The bag may be used several times before changing.
• Change the bag by lifting the lid and seat. Carefully remove the bag by loosening the taped edges, twisting the edges of the bag together, and seal the bag.
• Place an empty plastic bucket right next to the toilet and lift the bag into the bucket. Use this bucket for transport to avoid accidental spills.

• Cover the entire toilet with a 30-gallon trash bag to control odor. Air fresheners or room deodorizers may also be helpful.

Chemical toilets are a great option and are regularly used by boaters and campers. They use very little water and the chemicals help to keep the smell and spread of disease to a minimum.

Chemical toilets have a removable tray at the bottom for easy disposal of waste. They are light-weight and portable when empty. The nice thing about chemical toilets is that they flush so you do not have to smell or view anyone else's business.

Keep a stock of appropriate chemicals for the toilet. The chemicals have a limited shelf life. Check with the manufacturer for specifics. If the chemicals are unavailable in an emergency, use an alternative disinfectant.

Bedside commodes are commonly used for individuals with limited mobility and can be purchased online or anywhere that carries medical supplies. They can be a great alternative toilet.

Bedside commodes are well-built. Some can hold up to 350 pounds and the seat height is adjustable. They easily fold up and require little storage space. The bucket can be emptied as often as desired.

Most bucket liners come with a gelling agent, odor neutralizer, and decaying catalyst. Liners can be used 3-5 times before changing.

Potty chairs are great for small children. Hang onto that chair for emergencies.

We actually take our potty chair camping. It is much more convenient for a seven-year-old, who outgrew the chair many years ago, to go outside the tent in a potty chair than to make the long scary trek to the outhouse in the middle of the night. It might come in very handy in an emergency.

Composting toilet (sometimes called a biological toilet, dry toilet, or waterless toilet) is frequently used in remote locations, such as cabins.

A composting toilet system converts human waste into fertilizer or useable soil through the natural breakdown of organic matter back into its essential minerals. This compost is not safe for use on vegetable gardens. Composting toilets are expensive, but use little or no water and are practically odorless.

Septic Systems are quickly being replaced by sewer systems for a lot of good reasons. If you are fortunate enough to be on a septic system, you may avoid the necessity for backup toilets if your system remains intact. Be sure to perform regular routine maintenance on your septic system.

We recommend you still have a contingency plan in the event your system fails or you are required to evacuate.

A trench latrine may be a good choice if an outdoor toilet becomes necessary. It can be quickly constructed. Be sure to locate it away from the home and all water sources.

Create some type of shelter to provide protection from the weather and for privacy. Dig a trench 1-foot wide x 4 feet long and 2 ½ feet deep. Add a little bit of soil, ash, or lime after each use to help control odor and flies.

When the trench is filled within one foot of the surface, sprinkle with lime, fill with soil, and mound with an additional foot of soil. This toilet is used by squatting or straddling the trench.

Deep pit latrine would be a long term solution for an extended crisis. A single-seat latrine may be built over a hole that is 2 feet wide x 2-6 feet long x 6 feet deep using available materials to create a shelter and seating area.

Make sure the seating area is large enough to prevent it from collapsing into the pit. It is important to consider potential groundwater contamination when locating a site or the depth of the latrine. Be sure to sprinkle with soil, ash, or lime after each use and before closing the pit.

Waste storage may be something you need to plan for. In the event you are confined to a shelter, make sure you have buckets with tight-fitting lids for short-term storage of human waste. Plan for 5 gallons of waste from each person each week. That can add up to a lot of buckets!

Sewage backflow can be a terrible thing to deal with. Sewer systems require electricity to function properly. In some places, raw sewage is pumped uphill to the treatment plant. In some events, such as a line break or plug, sewage can back up into your home.

When the power is out that sewage can back up in the line and enter homes through drain pipes. If this occurs, you will most likely need to leave your home due to the potential of disease and the stench associated with raw sewage.

You may be able to prevent that sewage from backflowing into your home by stuffing a foam ball or bag of rags into the drains. Put the ball or rags into a larger sock or nylon to make removal easier by providing a handle.

Inflatable rubber test ball plugs are used to pressure test the plumbing in systems. They may work nicely to plug drainpipes and prevent sewage from backing up into the home. Evaluate your risk and, if necessary, consider installing some type of back-flow prevention device.

Solid Waste Disposal

We only need to look at the garbage cans of our neighbors (or perhaps ourselves), to realize most of us generate a significant amount of waste. What would you do if your faithful garbage man didn't come for weeks or possibly even months?

Some types of disasters could easily disrupt that service. Garbage is a prime breeding ground for bacteria, insects, and rodents. It also attracts other unwanted pests. Develop a backup plan in the event you have to hold on to your garbage for a while. Your plan may include some or all of the following strategies:

Separate waste to reduce contaminating all of it. Separate cans, glass, and plastic from burnable items and wet garbage. Wet garbage breeds bacteria and draws insects and animals. Mixing garbage contaminates all of it.

Reduce bulk by smashing cans, flattening boxes, and compacting whenever possible. Store lots of quality garbage bags. Trash cans or barrels with tight-fitting lids have many uses and might come in handy for storing garbage.

Compost yard waste, kitchen scraps, shredded paper products, and even cardboard to make beautiful garden soil. You can safely compost the manure from any animals that do not eat meat.

Establish the composting area away from your home as it will attract insects and flies. Turn your compost pile to facilitate decomposition. Covering the pile with a black tarp will increase the temperature and increase the decomposition rate. The result is rich, dark soil loaded with nutrients for gardening. A much better choice than a stinky pile of garbage.

Burnable trash may be a valuable resource. Burning may not be preferable due to safety and environmental concerns but may become necessary.

Cereal boxes, paper plates, cardboard, etc. may be used to fuel small fires for cooking. Cooled ashes can be added to a compost pit or used to control odors and germs in an outhouse. Use great caution when burning anything to ensure the safety of people and property.

Burn trash in appropriate conditions and locations. Do not burn plastic, Styrofoam, or other items that release toxins when burned. We store real paper plates instead of Styrofoam because they can be burned, reducing the amount of garbage we may need to deal with.

Burying trash may be required as a result of a prolonged crisis. If this becomes necessary, bury garbage as far away from your home as possible, and be mindful of high water tables.

Dig a hole at least four feet deep. Cover with at least 18 inches of soil to prevent insect and animal infestation. You may want to dig the hole and cover it with a large piece of plywood to allow additional garbage to be added as needed. Weigh the plywood down with large rocks or

heavy objects to prevent animals from accessing it. Layering garbage with soil, ashes, lime, or borax may help control odors.

Laundry

Some days feel like crisis laundry management even without a big emergency. Every time our family experiences the flu or returns from a camping trip, my appreciation for a working washing machine is renewed. What would you do if you did not have enough water to use your washing machine? What if water was available, but no electricity?

Our children would not mind wearing the same clothes 24/7 and we could probably make it through a short-term crisis without worrying about laundry. But what if the crisis outlasts our clean wardrobe? As with any preparedness options, there are inexpensive and expensive options. Choose which works best for your circumstances.

Alternative Washing Machines

Grandma's method has been used successfully for hundreds of years. It is an old-fashioned concept that still works. Use whatever containers are available and adapt her method to your circumstances.

- Sort clothes into lights and darks, similar fabrics, special handling, and level of dirt.
- Start with the cleanest clothes first, and add one cup of bicarbonate of soda, or laundry ammonia. The water should feel slippery when you rub your fingers together.
- Use three large tubs. One for washing and two for rinsing. This can be done with only one tub. Wash each load one by one, set them aside, then get fresh water, and rinse each load one by one, then get more freshwater to rinse each load again.
- Initial wash is accomplished by pouring three buckets of warm water into the first tub containing the washboard. Stand behind the board, lean over, and rub with an "up and down" motion working the dirtiest areas.
- Place the white clothes in a kettle of clean water for boiling. Pour soap over the clothes and fill with additional clean water to cover everything. Boil for 10-15 minutes, poking the clothes down in the soapy water from time to time. Fish out the clothes with a stick and put them into the first rinse water tub, then transfer them into the second rinse tub and wring.
- Scrub colored clothes in the wash water heated by the soapy white load.
- Hang clothes on the line to dry. Remove promptly.

The Wonder Washer is a type of pressure washer. It is about the size of a 20-pound propane tank. The maximum capacity is a little less than five pounds of laundry. You add three quarts of water, two tablespoons of soap, and add laundry. The Wonder Washer tank is turned manually by a handle. There is a drain at the bottom. The process is repeated until the clothes are rinsed and ready to dry.

The bucket and plunger method is a pretty effective way of doing laundry short term. Dirty clothes, water, and detergent are placed in a bucket with a hole cut in the lid to accommodate a plunger. The plunger is used to agitate the clothes.

A quality toilet plunger with a few holes drilled in the top of the base will work, but a commercially designed model works better. It has internal baffles that send water through the clothes to flush out dirt. Other popular laundry plungers are; Breathing Hand Washer and Washer Plunger.

The Laundry POD is a non-electric washing machine that resembles a salad spinner. It washes small, light loads of clothing. One gallon of water will wash a load. The water is drained out of the bottom and clean water is added through the top of the Laundry POD.

The Sailor's Method uses a heavy-duty black garbage bag to wash the clothes. Apparently, sailors would fill a black garbage bag with dirty clothes, water, and soap.

The black bag took advantage of the sun to heat the water and the ship's movement agitated the wash. We could see adapting this a little by gently pressing on the bag to agitate the clothes. This might be a practical method for washing large items such as comforters, blankets or sleeping bags that will not fit in five-gallon buckets to be washed.

Alternative Clothes Dryer

An old-fashioned clothesline is an effective way to dry laundry. Exposing the clothes to the UV rays of the sun may fade fabric, but it will also help disinfect the laundry. If you are using diapers,

reusable toilet paper, or anything which may have retained germs, leave it out a little longer to help disinfect the cloth.

Clothes can also be dried indoors. Ventilate when drying clothes to decrease drying time and prevent moisture from building up. Indoor drying racks come in a variety of shapes and sizes. They make drying more convenient and take up little space. However, clothes can be dried by hanging over chairs or doors.

Pest Control

Sharing our space and provisions with insects and disease-spreading rodents can make bad situations worse. Our precious supplies can be quickly contaminated if these pests are not controlled.

Insect control is a priority. Prevent breeding grounds by keeping the area clean. Separate garbage and store it away from the living area. Standing water is a breeding ground for mosquitoes, which are known carriers for the spread of diseases.

Carefully package all food storage to prevent infestation. Use care to prevent bedding from being contaminated through poor personal sanitation. Do not stop doing laundry! The old saying, "Good night, sleep tight, don't let the bed bugs bite" was adopted for a reason.

Store insect repellent and insecticides safely and away from foods.

Fly control is a must. Flies are not only highly annoying but spread disease rapidly. Keep the area free from animal feces, garbage, and waste products. Keep lids tightly closed on garbage cans. Cover food and clean dishes to prevent contamination by flies. Store fly swatters, fly strips, fly traps, etc. for use as needed.

Rodent control can be a bit challenging. Keep storage areas clean and organized. Store traps, bait stations, and poisons. However, use great caution to prevent accidental poisoning or secondary poisoning. Secondary poisoning can occur when another animal eats a poisoned rodent.

Take time to package food storage to prevent infestation. Rodents can quickly access foods stored in Mylar bags. Consider putting the Mylar bags or packages of food inside plastic buckets for an additional layer of protection. Even plastic buckets can be compromised by some persistent critters. Storing food in #10 cans is a great way to protect the contents.

Conclusion

Thanks for staying with me on this "taboo" topic! You have a lot of information, do not let it overwhelm you. Check out this sanitation action plan worksheet that we created to help you devise the perfect plan for your family and unique situation.

Good sanitation practices always make sense. However, in an emergency situation, it can make the difference between sickness and health, and possibly even life and death. Think about how you are going to be able to wash your hands, shower, manage human waste, dispose of garbage, clean laundry, and control unwanted critters. You can do this with a little advanced effort and planning!

We challenge you to come up with a reasonable plan with your family and practice it together. Just having the basic sanitation supplies always on hand will be a great blessing in everyday life. The peace that comes with knowing you are ready for any challenge is worth the effort.

Thanks for being part of the solution!

Kylene Jones is a blogger, content creator, published author, motivational speaker, homesteader, prepper, mother, and grandmother. She practices self-reliance, provident living, and emergency preparedness in her everyday life. She loves working with her husband, Jonathan, and is committed to helping our community be prepared to thrive during the challenges that lie in our

Where will you Go When you've got to Go in a disaster?

Following are specific instructions on how to handle human waste when your faucets and sewers do not work.

TWO - BUCKET EMERGENCY TOILET

In the aftermath of a disaster, people often feel vulnerable and scared. If your faucets and toilets aren't working, your family members will appreciate the comfort and safety of a simple twin-bucket toilet system. It's easy to put together and inexpensive.

Why two buckets for a toilet?

To separate pee and poo. And why separate pee and poo? Most of the volume of your waste is in urine, and urine can be easily disposed of in the yard. Poo is a lot less volume and contains microorganisms that can cause dysentery, cholera and a whole host of dangerous diseases. For that reason, you need to keep poo separate and dispose of it carefully.

Also, most of the odor from porta-potties and public toilets comes from urine mixed with poo . Keeping them separate provides a much less unpleasant environment. You can dilute pee one-to-one and pour it on the ground somewhere away from your living area. It won't breed bacteria there, and it won't smell a lot. And that takes care of most of your volume challenge. There are differing instructions on diluting pee before disposing of it; some say 4 to 1 water; it shouldn't be less than 1 to 1.

How to set up a 2-bucket toilet system

- **Get two plastic 5-gallon buckets.** Home improvement stores, restaurants, or bakeries are great places to find inexpensive buckets or free used buckets. These buckets don't need to be food-grade, but they do need to be sturdy enough to support your weight.
- **Label one bucket "pee" and one bucket "poo".**
- **Purchase or make two toilet seats.** You can adapt a regular toilet seat, or buy a seat that is designed for use with buckets. Most camping or outdoor sections of stores carry the a toilet seat with a lid that can fit onto a 5-gallon bucket. They snap on and off easily.
- **Buy a roll of sturdy, heavy-duty, plastic garbage bags (13 to 20 gallon size).** Trash compactor bags are recommended, because they are stronger. You are going to line your poo bucket with a bag so that you can empty your poo bucket simply and cleanly. Don't let the liner get more than half full before changing the liner.

- **Supplies for cleanup.** Purchase toilet paper, paper towels, hand sanitizer, soap, and disposable gloves (for times when you replace the garbage bag). Scroll down to learn how to build a hand washing station.
- **Gather a supply of carbon-based material.** This can be sawdust, shredded newspaper, bark chips, dry leaves, peat moss, woodstove pellets – anything that's compostable carbon. Ask an office for a free bag of shredded paper. Get a free bag of sawdust from a lumber yard. The purpose of the carbon material is to create a cover layer in your poo bucket every time you use it. This will fill up your bag liner faster, but there are important reasons to do this: covering up your poo will reduce odors, it will help keep flying insects away reducing the possibility of spreading infections, and the carbon will start the composting process for the waste, transforming it into a safe material faster.
- **Store your supplies inside your buckets,** so they are ready when you need them.

Is Pee Sterile?

The quick answer is: No. Urine isn't sterile.

All things being equal, poop contains orders of magnitude more disease-causing bacteria than urine by unit mass. However, the myth that a healthy person's urine is sterile is something medical professionals believed for a long time, according to the Cleveland Clinic (see article). "Old lab testing techniques weren't sensitive enough to pick up small amounts of bacteria," Dr. Parekh said. "As the technology improved and we developed more advanced ways to test for bacteria, we learned that there actually are microbes and other contaminants in the urine. The levels are typically harmless for most people, but they're still there."

Can you get sick coming into contact with urine?

Urine is mostly made up of water. However, while it's very uncommon, coming in contact with your urine or somebody else's urine does have the potential to make you sick. For that to happen, the pee would probably need to enter either (1) an open wound or (2) one of your external mucus membranes (eyes, ears, nose, mouth, genitals, or anus).

What does this mean for hygiene during a disaster?

- Wear personal protective equipment (gloves, googles or glasses) when handling human waste, including pee.
- Always wash your hands after going to the bathroom or handling waste waste.
- Do not drink urine or use it to treat wounds. Urine *does not* have antiseptic properties. In fact, it could make an injury or illness worse.

Where to Put Your 2-bucket system:

For modesty, and to keep out of the rain, there are shelters one you can buy at camping and sports stores, or you can construct your own. Location depends on your particular circumstances – on your deck, on in a select place in the yard that is flat and easy to get to in the dark. It's important to have enough room to have pee and poo buckets next to each other so you can make sure the poo bucket always gets the toilet paper. **If you have a big enough bathroom and are still living in your house, why not put them there?** You also need a wash station nearby, with a place to hold soap, water and towels. There are lots and lots of do-it-yourself designs on line, and ideas for pouring water, because you are not going to be using your sink.

Adapting Your Home Toilet for Emergencies:

If your home has 2 bathrooms, you can designate one as the PEE Toilet and one as the POO Toilet following all the same guidelines as for the Twin Bucket System.

To adapt a home toilet for emergencies (no water/sewer), turn off the water, flush to empty, and line the bowl with 13-gallon trash bags to create a dry toilet. Use absorbent materials like kitty litter, sawdust, or peat moss after each use to manage odors. Keep the lid down, and dispose of waste in lined, sealed buckets.

Steps to Convert Your Toilet

1. **Stop Water Supply:** Shut off the valve behind the toilet and flush to empty the tank and bowl.
2. **Line the Bowl:** Place a heavy-duty (2-3 mil) 13-gallon trash bag inside the bowl, securing it over the rim.
3. **Add Absorbent Material:** Sprinkle a generous amount of absorbent material (kitty litter, sawdust, coffee husks, or soil) into the bag before and after each use to minimize odor and liquid.
4. **Manage Waste:** Keep the lid closed when not in use. Use a "twin-bucket" system if possible: one for urine and one for solid waste. Urine can be diluted and used on non-edible plants or safely disposed of.
5. **Remove and Dispose:** When the bag is partially full, remove it, seal it tightly, and place it in a designated, lidded container (like a 5-gallon bucket or garbage can) for storage or final disposal.

Do not try to flush with, say, a bucket of water if the sewer system is down, as this may cause a backup.

WASTE DISPOSAL:

Always be careful when bagging your contents. for example, wear disposable gloves, and afterwards, always wash your hands with soap and water, or alcohol-based hand sanitizer. obviously, you may need to store your poo bags for quite a while, as pickup service is unlikely to be available for some period until utility services are restored.

it's important that you do not bury these bags, as animals can and will dig them up and rupture the bags and create a mess.

if you have an extra garbage bin, that can be a safe temporary storage for your family. Do not use recycle or garbage cans that you use for regular pickup by the garbage service. you won't want to use it for that after you've been storing poo in it. Your poo bin will have to be separate and stay safe until public services resume and can come pick up your stored bags.

Your neighborhood might organize a common storage site that can be a temporary disposal station for a neighborhood's waste for a time. it needs to have sufficient capacity for the neighborhood, and be a secure container that is safe from children, pets, rats and flies.

DEALING WITH HOUSEHOLD TRASH:

SAFETY CONSIDERATIONS

- DO NOT BURN PLASTIC, STYROFOAM OR OTHER ITEMS THAT RELEASE TOXINS WHEN BURNED.
- BE MINDFUL OF DRY CONDITIONS AND ONLY BURN TRASH IN APPROPRIATE LOCATIONS.
- WHEN BURYING TRASH, DIG A HOLE AT LEAST 4 FEET DEEP AND COVER IT WITH AT LEAST 18 INCHES OF SOIL TO PREVENT INSECT AND ANIMAL INFESTATION.

Best ways to dispose of household trash in a disaster `

- Separate and compost food waste.
- Reduce bulk by smashing cans and boxes.
- Compact where possible.
- Bury paper and compostable trash in shallow pits if you can. Bury trash as far away from your home as possible and be mindful of high-water tables.
- Layer garbage with soil, ashes, lime or borax to help control odors.