

My thoughts on sanitation.

By: Jerry D. Young

Sometimes sanitation can be a difficult subject to discuss. I believe it is one of the top subjects that needs to be discussed, especially when it comes to a group that might just be in close quarters at some point in time. If everyone knows and understands the basics, the ins-and-outs, the nuances, and especially the absolute needs, life will be much less unpleasant, less smelly, and definitely safer from a medical standpoint.

Sanitation covers several different, but related subjects. The first one I want to hit is personal sanitation. That is where it starts, especially health wise. One must keep oneself as clean as the conditions allow. And preparations should be made well before hand to make this as easy as possible.

If there is a working water supply and working sewer system this generally just means being a bit conservative with the supplies, but maintaining a daily or every other day body cleansing. Hands have to be washed and/or sanitized after any contact with anything that can harbor infectious or otherwise dangerous organisms or materials. Even if gloves were worn during the handling, wash or sanitize the hands after removing the gloves. And no matter how short a time period since the last hand washing, wash them before and during any food handling process.

While I suspect everyone reading this keeps themselves quite clean, including during bathroom visits, it is critical that this personal cleansing process is kept up, and even enhanced, if possible. The last thing anyone wants is to get a communicable disease from someone's clothing that did not bother to make sure they were clean when they left the bathroom or latrine.

If hair can be kept protected with a hat, scarf, hood, or even just keeping it tied up if long, that will go a long way toward conserving supplies, as the hair can usually go two or three days easily without washing unless there is a specific need for it. And hair washing is one of the things that can be done without water fairly easily, fortunately, if you have the right materials. I will address this later.

Fingernails should be kept short and clean, and if there is any propensity to have dry hands, a good hydrating lotion should be used to protect the hands in general, but to also reduce the chances of dry cracks developing on the hands and fingers.

The same goes for toenails. One might not think that toe nail clippers and nippers are a survival tool, but long toe nails can cause cuts on your own feet or others if working closely without shoes and socks for some reason, such as gathering cattail roots with bare feet.

And, like the lotion for hands, some lotion for the feet is a good idea. But so are antibiotic soaps and antifungal creams to keep down the risk of infections that could be debilitating if they get bad enough to interfere with travel. A good foot powder and lots of clean, dry socks are

also recommended for keeping the feet clean and dry when in the field. This may not sound like sanitation, but it falls under preventative measures to reduce sanitation needs.

Having plenty of disposable dust/clinical masks, or, preferably, plenty of appropriate washable masks will go a long way to preventing the spread of infections if everyone, including the infected person, begins to wear them as soon as the conditions exist that someone may be coming down with something

The same goes for having a good supply of hand sanitizer, and using hand sanitizer is another good reason to keep and use hand lotions, as many of the sanitizers will really dry out the hands with constant use.

If water or sewer facilities are limited there are some alternative method that will work.

For hand and dish washing a couple plastic wash pans, two or three 1-gallon Sno-cone syrup bottles with HD pumps, and cold water dish detergent and a good hand soap will work. Good hand bar soaps to store are Ivory for basic bathing and cleanliness; Lava for the tough work hand cleaning; and the antimicrobial Dial for the constant hand washing to keep down the risk of infections.

Personal bathing:

Get a couple MSR 4-liter Dromedary bags with shower kits for bathing. If you still have working drains set one up in the tub or shower. Do not use in the tub or shower if the drains are not working or there is a water bob in place. However, with that said, it might be possible to stopper the tub and use either a siphon hose or a small 12v marine bilge pump (if you have an indoor 12v system) to get the water to a waste water tote or outside. Can do the same with a blow up kiddie pool.

If you cannot use the tub, set up a privacy enclosure in the garage if it will drain to the street, or build a collection basin you can attach a hose to for directing the water where you want it. To the street, yard, or garden. Or find a place outside that is private, or have a privacy shelter where showers can be taken and the water drain to somewhere safe.

If you do shower, take a Navy shower where you wet down, turn off the water, soap/shampoo up, and then turn the water back on to rinse. Be very conservative with the soap/shampoo.

It is probably best to do a sponge bath with a container of water that can be emptied into a liquid waste tote.

If water is at a high premium, the use of baking soda, clean mortar sand, bentonite clay, clean saw dust, corn meal, and corn starch can be used dry to clean the hands, body, and hair. For the hands and feet, rub the items onto the skin firmly, and then brush off with a stiff brush and finally with a soft brush.

Do the body the same way, being a bit more gentle in certain parts of the body. Save the conventional methods for the sensitive areas. For the hair and beard, work the dry products into the hair down into the skin. Shake out and then brush thoroughly. After a bit of practice you will get the feeling for how much of each item you need, and which product works best for what areas. Be sparing, but stocking the dry ingredients is much cheaper and less space hogging than water.

Clothes washing:

Any way you look at it, washing clothes takes a lot of water. Brush and air out outer clothing to minimize the need for washing. When you do need to wash clothes, do small batches regularly, rather than wait and try to do a lot at once.

Use Fels-Naptha clothes washing soap or liquid cold water detergent, and Borax as needed.

Where a James washer (I no longer recommend these as quality seems to have fallen off) w/ringer & 2 wash tubs or a gasoline engine Maytag wringer washer might be an option at a home, a Mobile washer plunger (one just for clothing) with two or three 5 to 6 gallon buckets, is probably the easiest, most compact, and minimum water use method of washing clothes. They are much easier than a scrub board in my opinion.

You could even mount a hand ringer to a third bucket or a tub to get more of the water out before you hang dry the clothing. (If you do use a wringer, even a manual, be very careful of getting body parts caught in it. I still carry the scars of getting the fingers of my left hand in a wringer that split my hand apart to the palm between my first and middle finger when I was two or three years old.)

String a line over the tub, even if the drain does not work, to dry the clothes. Leave the bathroom door open if possible for more air circulation. Or hang outside if secure enough. Have the means to put up a good clothesline if you do not already have one. Poles, cross arms, guy lines, clotheslines, lots and lots and lots of clothespins, a couple of clothespin hanging bag, some laundry baskets, wheeled if possible.

TP replacements: red shop towels or custom personal marked/colored cloth squares, stainless steel step can, Fels-Naptha clothes washing soap or liquid cold water detergent, bleach, 2 steel stock pots (washing & rinsing), stainless steel tongs (washing & rinsing), 2 Mobile washer plungers (kept labeled) (washing & rinsing), a mop bucket mop wringer, several boxes of nitrile long gauntlet gloves, and clothesline materials. These items will allow for the use of individual personal wipe cloths, wash them, rinse them, and hang them in the sun for final sanitation. Keep things separate for each stage.

Moving on to living space sanitation. Another case of people probably keep a very clean, sanitary house. But in times of trouble, when cleaning time might be short, compared to all the

other things that must be done, it is as important, if not more so, to keep surfaces that people touch often clean and sanitized, as there probably will not be an opportunity to get someone to a medical facility capable of treating something they picked up off the counter top, door knob, faucets, and so on.

Keep the place as clean as possible, even if just using a broom on both flat and carpeted floors, and a sponge type mop for hard floors. Wipe things down with disinfecting solutions often. Bag trash immediately and secure it tightly for later disposal. There are some great cleaning products out there, but do not discount the basics like plain bleach, vinegar, ammonia, lemon juice, and the other staples that can be found in any good house cleaning hints book. Stock up the ingredients needed to make your own soaps, detergents, and other cleaners, and the equipment, and recipes to produce them

Have plenty of effective surface cleansers on hand, and use them often, especially the areas one might not think of too often, that people do touch regularly, such as those already listed and others.

Keep the kitchen area, whether it be in your home or out in the field, all of it, clean to the point some might think you have OCD.

Store large amounts of simple homemade cleaner ingredients. Baking soda, vinegar, rubbing alcohol, washing soda, Borax, mild dish detergent [castile soap], cream of tartar, hydrogen peroxide, lemon juice, sodium percarbonate, salt, corn starch, and olive oil.

If the sewer and drain systems are not working, alternative means must be found to dispose of what water is used for cleaning. Do not just dump it willy nilly outside. Determine an area where the water can spread out and soak into the ground at all possible, without pooling up. Try to find several alternate areas meeting the same criteria and rotate their use.

Remember that some of this water will have some fairly harsh chemicals in it and might need to be disposed of in yet another location where it cannot damage plants and animals, or contaminate water sources. It might come down to actually digging a pit and putting the water in it to contain it in a smaller area.

This is a good place to address some creepy crawly type pests. Disposing of water on the surface can draw several types of insects, many of them detrimental to human health and wellbeing. Wasps, yellow jackets, bees, and mosquitos are just some of them. So be prepared with traps and other means to eliminate and otherwise control these bugs both outside and inside the house.

Solid waste and trash can draw larger pests such as mice, rats, squirrels, raccoons, feral cats and dogs, and wild animals such as coyotes can become a serious problem. It is not just the sanitation factor with mice and rat dropping, it includes the diseases that some of the animals carry, including flea and tick borne diseases.

Keep empty cans and other containers separated and contained in animal and insect proof containers. Your basic trash bag will not cut it on its own. You need to be able to dispose of those bags of things in larger containers that are rodent and pest proof, or burn, or bury them.

The burning can draw some attention, you might not want. Just pinpointing your location for one, giving away what and how much you have been eating is another.

Burning, crushing, and burying cans and such is probably the best way. Especially if you are set up for it. Not just to reduce the chance of a fire spreading, but the use of a purpose built incinerator can quicken the burn process, and since accelerants can be safely used, the fire can burn hotter and therefor reduce smoke and smells coming from the vent stack.

If you have the means to then crush the metal, break the glass, and still contain it someway, it can be buried without taking up nearly as much space. In any case, keep these bulkier items away from the living quarters.

So traps, snares, appropriate chemicals, sound and vibration systems, and other means can be used to control the bigger beasties. Try to find natural ways to eliminate them if at all possible. There are several books available on the subject.

Now, to the nitty gritty. Human waste sanitation. This is vital to health and wellbeing, especially during a disaster of some type. Whether you can bug-in at home, or have to bug out to the field, you will need to address this. Even if bugging-out to a place with facilities, you still have to get there, and unless it is a very short trip, and no delays en-route, chances are someone will have to go to the bathroom.

All the cautions already stated apply, even in this difficult situation. Cleanliness is paramount. But how do you do that?

Well, if you can bug in, but the sewer system is not functional, there are several pretty decent alternatives. My preferred one is a more or less standard camper's chemical flush toilet, with a waste tote or two to store the waste if more than one filling is needed. Lay in large stocks of the toilet chemicals.

Second, that I know many people plan on using, is a bucket toilet, with a homemade or commercial toilet seat on it. These require materials to cover the waste after each use, and some type of odor control.

If the possibility exists, installing an outhouse now could be an option. Even if not, if there is space, having the materials ready to assemble one, if it looks like it could be a long event, should be considered. An outhouse does not need to be dirty, cold/hot, and nasty. I have seen some as nice (or nicer in a couple of instances) as some indoor bathrooms. With solar energy and good batteries, LED lighting, and battery fans they can be well lit, and well

ventilated. Small propane heaters can be added, and ventilation fans for summer. (Yes, the one outhouse was air conditioned.)

Push comes to shove, an outdoor latrine might need to be dug or created. This is way down on my list of options, for a variety of reasons.

If you can find quicklime, it will help with odors. But it is dangerous stuff. You do not want children handling it.

A very effective, but rather costly, method of urine capture is liquid absorbent travel urinals. Most are designed for both men and women, and several are set up so children can use them effectively. The urine gels, and the bag is sealed and disposed of later. These are especially good for travel.

But, when you gotta go, you gotta go. And that means solid wastes. Well, there are the same type of absorbent bags for solid waste. These are much bulkier and much more expensive. The particular brand I have can be used with a regular toilet bowl, a bucket, or a purpose built commode chair. Again, due to the expense, some of the other methods are preferable to these, but for travel, they are a very good choice. And those that are pretty squeamish about human waste and prefer not to deal with it much, these are a good choice as you do your business, zip up the bag, and put it in the waste container for later disposal.

Which brings me to the disposal part. First, some cautions and a tool list. Be extremely careful when you are handling human waste. It is nasty in and of itself. And the diseases it can harbor are truly horrific. So. When it comes time to handle any human waste, for any reason, make sure you have some sort of lightweight coverall on, have hair covered or tied back, wear goggles, wear a dust mask, wear durable exam gloves, plus a pair of inexpensive jersey gloves to wear over the exam gloves, that can be sanitized.

The dust mask will not do much for the odors, but if you do not have a respirator and plenty of cartridges, it is better than nothing. Its main purpose is to keep any splash or spill from coming into contact with the mouth. Same with the goggles. You do not want that stuff in your eyes. Or regular clothes. Rubber boots would be nice, but your ordinary boots can be cleaned if need be.

A latrine is just filled a little bit at a time during use, and when it is time to be abandoned, it is completely filled.

Some of the other methods, where human waste is accumulated, that waste must be disposed of properly. And that does not mean emptying the chamber pot out the second story window.

This is very important to keep disease down. If you do not do it properly yourself, it could easily come back to haunt you. So, if there happens to be a working sewer in the area, an

RV dump station, or a pit toilet in a campground fairly close by, the liquefied wastes can be disposed of in them. The dry-bag, or even just doubled trash bags that have been used as toilet receptacles should not be put in these. They need to be buried. Deep. Animals will dig up human waste. And they can smell it through a double layer of plastic and twelve inches of earth.

So dig deep, preferably twenty-four inches or more. Make sure you are not digging in a spot that could contaminate water sources. Those might be desperately needed for yourself or others.

If at all possible, after filling the hole back up, put some large rocks, some boards, sheet metal, anything handy, to help prevent animals from digging there.

In this area, you will probably need both a pick and a shovel to dig a latrine, outhouse pit, or burial chamber. Sometimes, for small amounts of waste, a post hole digger can be used. If a person knows they will probably need to bury some waste, it is not a bad idea to pre-dig some holes when time and power tools are available, and fill them up with clean mortar sand so they can be quickly dug back out when needed, and the dirt used in raised beds for gardening.

While regular buckets with lids can be used to store and transport human waste, it is much more sanitary and safe to use wheeled totes specifically produced for this purpose. I will have a list of sources at the end of this article. They have a pour spout and can use regular RV sewer hoses to direct the flow, and with the wheeled ones, they are much easier to move around than carrying buckets.

Keep in mind that all of these sanitation recommendations will help keep you safe and sound and healthy. Also keep in mind that other people might not, probably will not, be doing the same things, so it is not just your own activities you are protecting against, it is anyone and everyone anywhere close to you. To me, that makes stressing sanitation an extremely high priority. What other people do, or do not do, can impact you. It is like defensive driving. Practice defensive sanitation.

If you are part of a close knit group, having the standards high, and maintaining them, is doubly important.

A question now. Not paper or plastic? But disposable or reusable? Which do you chose as your primary method of cleaning up? You should have both, but most people will prefer one or the other. On one hand, if you can burn safely and securely, paper towels, paper plates, and other disposables to make clean up easier are a good choice. You just have to stock up on them, and still have some non-disposable alternatives.

There is a left hand matching that right hand. If you can be fairly sure of being able to wash dishes and fabrics effectively and economically, using cleaning cloths, reusable (preferably sanitizable) eating dishes and utensils and such, using them will lessen the need for

stocking large amounts of disposables. But some disposables will be required for those times when you just are not in a position to clean the reusable items after use.

I recommend you do both, of course, but it really is easier to set up for one or the other as primary use.

Part sanitation, part grooming, for men, shaving can be a way to stay clean, and to feel good if you do not normally wear a beard/mustache. If you are an electric shaver person, and are in a situation where you cannot use it, be extremely careful switching to a manual blade razor. It is a good idea to practice from time to time with a manual blade razor simply to keep in practice. The last thing you want is open cuts and scratches on the face while doing dirty, nasty work, and/or handling dirty, nasty stuff.

Obtain and store alternatives that do not rely on electrical power. And stock up on the consumables required for shaving. That will often include disposable shavers or blades. If you decide to go with a straight razor, have someone that knows what they are doing teach you to use it. You can literally cut your throat if you do not know what you are doing, and do not use an appropriate shaving soap, and do not keep the razor... well... razor sharp.

If push comes to shove, let the beard and mustache grow and keep them neatly trimmed with the much easier to use comb and scissors designed for that purpose. Keep both methods available.

A few words on women's specific sanitation needs. Difficult times can bring on menstrual problems. Sometimes stopping it for a time, other times making it very irregular, and often heavier. So women need to stock whatever they normally use in large quantities, and at the very least consider some of the reusable alternatives.

Take particular care to avoid any infections, by choice of diet and cleanliness, and if one does occur, have the means to eliminate it. (Some UTI products: Pyridium/powdered cranberry juice or pills/apple cider vinegar, Acidophilus pills (for women before taking antibiotics that could cause yeast infections), Miconazole (for yeast infections))

And while this can be an issue for anyone, having the means to maintain as much privacy as possible during some sanitary activities, it can mean a great deal to some women, adversely affecting them without it. If at all possible have curtains, enclosures, screens, etc. and some personal space such as a personal closet or dresser or a bag in the field for feminine needs.

Whether disposable or reusable items are used, it is a good idea to use a stainless steel step waste can with liner to hold the used items until they can be disposed of or sanitized in the case of the reusable items. With some of the alternative solid waste systems listed it will not matter too much. Others it will. If you think you might not be able to dispose of them normally, have the alternative.

If bugging out on the road or in the wild, or where sanitary facilities are not sanitary any more, there are now WSUUDs (Women's Stand Up Urination Devices) that allow a woman to urinate without having to disrobe nearly as much as normal, or squat all the way down. This can be a simply a privacy thing on the side of the road, or rather critical in extreme cold weather; where there are many bugs, snakes, or brambles; or there is a lot of windblown dust and debris in the air; or where a woman has back, hip, leg, or knee problems and has problems getting up and down.

Now, for those that might be in the market for a new home or BOL, that will not have city sewer, a few words about septic systems.

Nearly as important as adequate water supply, is a reliable waste disposal system. If you are on a city sewer, you probably cannot legally have a septic system. But if you can have your own septic system, I have a few thoughts on that, as well.

A well designed, properly installed, and regularly serviced septic system is very reliable. The key factors being not burying the septic tank too deep, installing a large enough tank, having an adequate amount of field tile, and most importantly, installing the field tile properly.

I have seen several septic systems with a large tank buried at the correct depth, and with plenty of drain field. But the drain field was not properly installed and the people had trouble constantly.

Starting at the inlet, here are a few recommendations for the installation of a conventional septic system.

The closest point of the septic tank should be at least five feet, but not more than ten feet from the house. It should have enough earth cover to allow good grass growth. Four to ten inches is adequate. A tank of at least five-hundred gallons for two people is adequate, but for a family a tank of one-thousand to two-thousand gallons is best. I prefer concrete tanks as they last longer than steel, and usually have one or more cleanout holes built in. Fiberglass tanks are also a good choice.

No matter which tank material you choose, be sure that access holes are installed to allow routine maintenance. The inlet should have a tee installed inside the tank with a pipe extending approximately halfway down the sidewall. The tee is not necessary if the tank has a built in baffle. A tee should also be placed on the outlet, which is two to four inches lower than the inlet hole. A solid pipe should go from the outlet to a distribution box. The lines of perforated pipe or tile, run from this distribution box. A short section of solid pipe should be used on each field line to prevent the waste water from getting around the outside of the distribution box.

A trench not less than two feet wide, or more than three feet wide, should be dug deep enough to allow a four to six inch layer of washed gravel, not rock, beneath the pipe. Lay the pipe, and cover with more gravel to within six to twelve inches of the surface. The pipe should

be level. Do not slope it at all. Place a permeable barrier over the gravel to prevent earth settling down into the gravel. Tar paper is not permeable. It prevents water from going up. The best choice is uncoated felt building paper, but you may have to use a layer of straw or similar substance. Fabric goods are now available specifically for disposal fields. Fill the rest of the way with loamy soil.

Probably the two major mistakes people make is to have the field tile too deep, (usually the result of a septic tank too deep), and putting tarpaper over the gravel. This prevents the upward movement of the water. In a properly installed system, a large percentage of the moisture evaporates or is used by the grass growing above the line.

There are now some alternatives for the disposal field not available just a few years ago. Polymer chambers, such as the Infiltrator, are placed in an appropriately sized trench and simply backfilled without the need for gravel or permeable barrier. Much easier, and just as effective, if not more so, than conventional perforated pipe and gravel systems, the chamber system are usually competitive in price.

For special circumstances, such as poor soils, hilly areas, or high water tables, see a septic system specialist or contact your county extension agent. The government has several very good pamphlets on alternate sewage disposal systems.

Feel free to ask question, make comments, or expand on any of the above. If you want a link to something I mentioned that I do not include below, let me know and I will find one. I will have a couple of the items I mentioned at the April 2014 group meeting.

Oh. You might notice I did not really mention toilet paper. I did not figure I needed to.

Some links:

Waste totes:

<http://www.amazon.com/s?ie=UTF8&page=1&rh=i%3Aaps%2Ck%3Aportable%20rv%20waste%20tanks>

Two highly informative sites for modern septic systems:

<https://www.thenaturalhome.com/index.html>

<http://septicolutions.com/InfiltratorChambers/InfiltratorQuick4.html>

Mobile Washer hand clothes washer:

<http://beprepared.com/mobile-washer-hand-operated-washing-machine.html>

Mobile washer and a wringer:

[http://www.amazon.com/s/ref=nb\\_sb\\_noss\\_1?url=search-alias%3Daps&field-keywords=rapid+washer&rh=i%3Aaps%2Ck%3Arapid+washer](http://www.amazon.com/s/ref=nb_sb_noss_1?url=search-alias%3Daps&field-keywords=rapid+washer&rh=i%3Aaps%2Ck%3Arapid+washer)

A couple of examples of chemical toilets and chemicals:

[http://www.amazon.com/s/ref=nb\\_sb\\_noss\\_1?url=search-alias%3Daps&field-keywords=chemical+toilets&rh=i%3Aaps%2Ck%3Achemical+toilets](http://www.amazon.com/s/ref=nb_sb_noss_1?url=search-alias%3Daps&field-keywords=chemical+toilets&rh=i%3Aaps%2Ck%3Achemical+toilets)

The Travel John waste collection bags I mentioned:

[http://www.amazon.com/s/ref=nb\\_sb\\_noss\\_1?url=search-alias%3Daps&field-keywords=travel+john](http://www.amazon.com/s/ref=nb_sb_noss_1?url=search-alias%3Daps&field-keywords=travel+john)

Some Women's Stand Up Urination Devices (For what it is worth, I have it on good authority that the pStyle reusable is an excellent one.):

[http://www.amazon.com/s/ref=nb\\_sb\\_noss?url=search-alias%3Daps&field-keywords=women's%20stand%20up%20urination%20device](http://www.amazon.com/s/ref=nb_sb_noss?url=search-alias%3Daps&field-keywords=women's%20stand%20up%20urination%20device)

Just my opinion.