

Disaster, Pandemic Sanitation Response

Preparation in an uncertain world

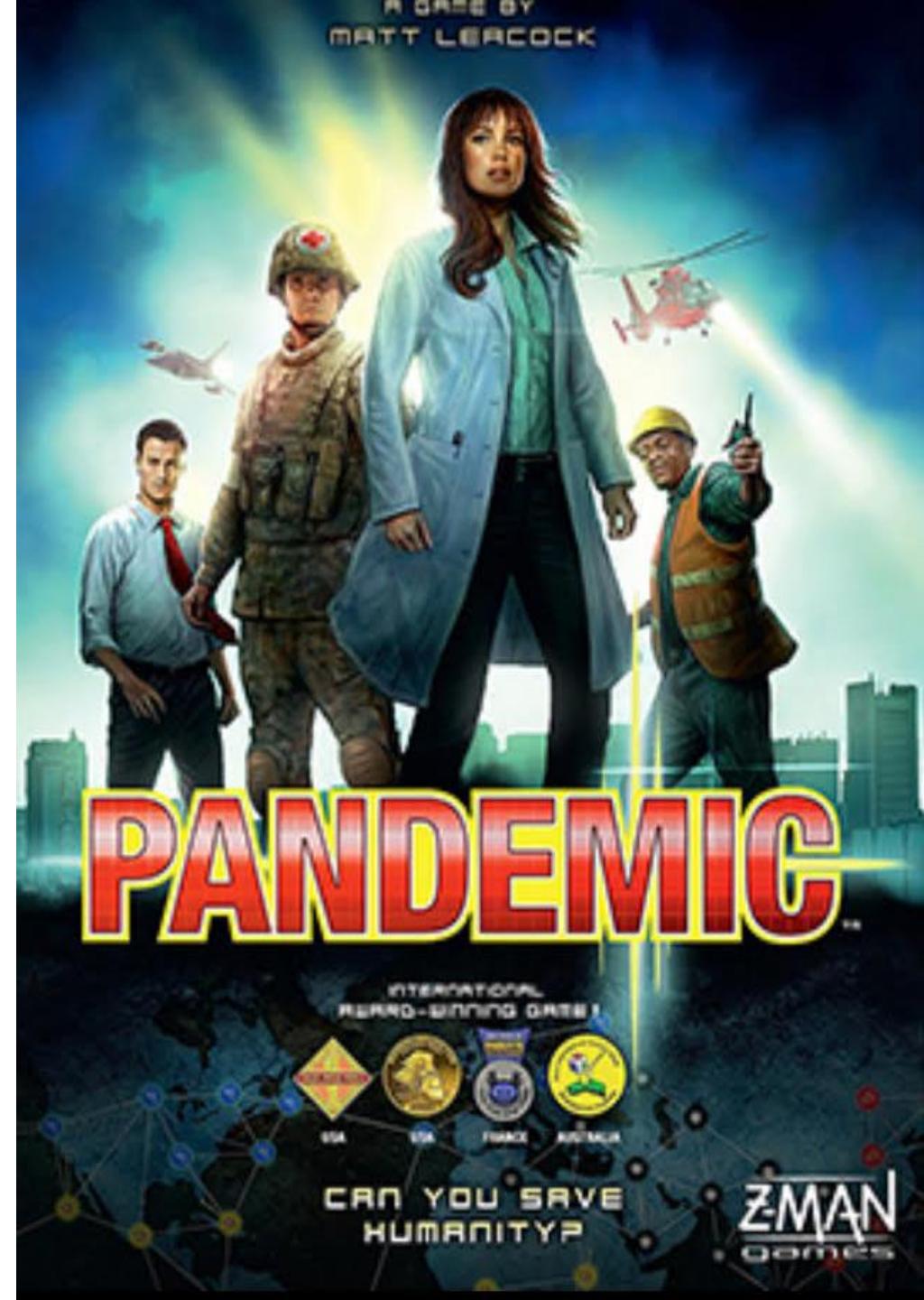
[Approaching ready website](#)

Neil Rawlins

Pandemic

Not new. Did we learn anything?

- Board game came out in 2008
- My kids ordered this game as I was preparing for the 2009 Swine flu pandemic
- Are we better prepared now?
 - Government? Will they get it right next time?
 - Personal preparedness
 - What can we do different?
 - Community/church preparedness
 - How can we prepare better as a church
 - How about Community preparedness



Pandemic panic Utah

- Pandemic widespread Feb 2020
 - Run on TP, Emptied shelves and warehouses in several waves
- Earthquake March 18,2020
 - Run on freezers
 - Production on freezers was cut in half Jan 2020
 - Nationwide shortage of home freezers
- High winds with power outage
 - Power out for 2 weeks in some places
 - Food spoiled due to local shortage of portable generators

Pandemic Preparedness

What are our personal lessons learned?

Flu, Pandemic, Body Fluids

- Pandemic Bin
- Quarantine room
 - Drop cloth, duct tape, chemical suit, hair and shoe covers
 - Eye protection - goggles
 - Mask – N95
- Disinfectants/Antibacterial: bleach, Cavicide, wipes, tissues
- Bouffant cap - disposable
- Emesis bags, lg zip-lock bag,
- Bags: Biohazard, lg & sm trash, etc
- Soap, hand sanitizer
- Portable toilet, commode, bucket
- Gloves – vinyl & long utility

- Diapers – baby, adult, cloth/disposable
- Spay bottle for liquid bleach
- Bucket, scoop,
- Pop up privacy tent / enclosure
- Critter control: pets, fly paper, mouse traps, bug spray
- Plastic bags
- 5-gallon buckets with lids
- Kitty litter absorbent
- Laundry
- Rehydration liquids
- Medications, herbals, teas,

Pandemic & Flu Preparation

Before a Pandemic

- Two weeks food & water
- Rx-meds: build up or have continuous supply
- OTC-meds
 - pain meds, stomach remedies, cough/cold meds, vitamins
- Rehydration fluids / mixes
- Have copy of health records, medication list, etc.
- Discuss with family how they would be cared for if they got sick, or what will be needed to care for them in your home.

During a Pandemic

- Avoid close contact with sick people
- When you are sick, keep your distance from others
- Cover mouth/nose; use mask
- Wash hands frequently; use sanitizing cleaner
- Avoid touching eyes, nose, mouth
- Good health habits
 - sleep, activity, stress management, nutrition, etc.
- Hydration & rehydration fluids & mixes
 - Gatorade,
- Clean up, dispose of, and manage body fluids carefully
- Consider quarantine if needed

Source: www.ready.gov/pandemic

Disaster challenges That we could face

Local

- Power outages (EMP, Solar eruption, Nuclear)
- Local earthquake
- Loss of community resources, Political disruption (police, fire, sewer, water)
- Volcanic ash fallout (Solar doesn't work)

Widespread, overwhelming

- Cascadia Fault prediction. (9.0)
 - Tricities may get 1/5 (20%) of the Portland area. Possibly more
 - Tricities population goes from 300K to 3.3 Million people overnight
 - All of our resources are overwhelmed even if our systems otherwise are working
 - Each family may be asked to take care of 50-100 people

Water. Local Preparedness

- 3 days supply in emergency kits
 - 2 week supply would be great. Give time to work it out plan
- City system may be down or overwhelmed
 - May function for a couple hours a day (WaterBob)
- Individual wells Require electricity, (Generator, Solar,
 - Manual Pump www.flojak.com designed for 3rd world)
- Gravity Filter like Berkey, Alexapure for drinkable water
- Where will you get water? River, pond, rain barrels
 - Where did the pioneers get their Drinking water
- How will you transport water? Cart, bicycle,
- Purification,
 - Water Presentation Slides



Water: Widespread preparedness

Worldwide a child dies every 2 minutes from poor water quality

- Local water system if functional will be quickly overwhelmed
- Where would you get water? In what container?
 - WaterBOB, 55gal drum, 5 gal container
- How will you distribute water?
- Rain water collection Do you have barrels? (restrictions in many states)
- Water Sterilization, Filtration
 - Bangladesh Cholera problem
 - Diabetes skyrocketed
 - Gravity water filter
 - Berkey (filters not available)
 - Alexapure



Use clean PET bottles

Fill bottles with water, and close the cap

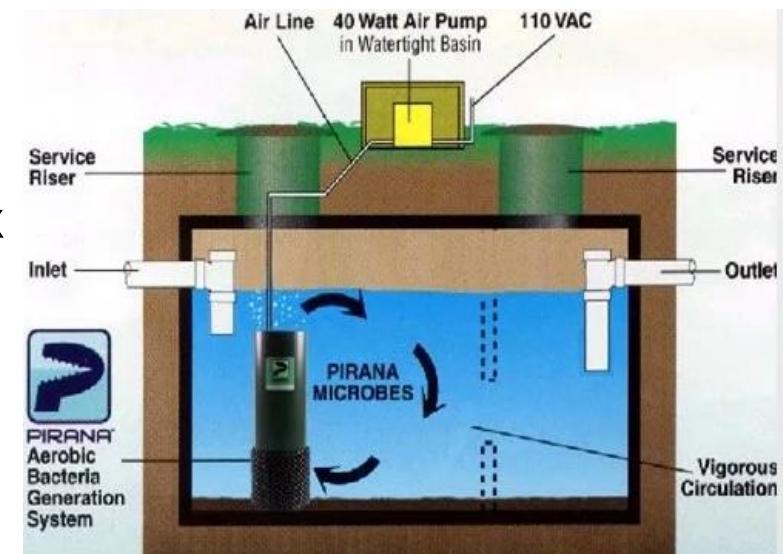
Expose bottles to direct sunlight for at least 6 hours (or for two days under very cloudy conditions)

Store water in the SODIS bottles

Drink SODIS water directly from the bottles, or from clean cups

Emergency Sewer: Local Sanitation and Hygiene

- Sewer system down
 - Requires electricity, Water for flushing
 - Dual bucket system PEE and POO buckets
 - Toilet paper and alternatives [23 toilet paper alternatives](#)
 - Waste disposal for your buckets and other waste
- Septic system
 - Many have electric pump from septic to Distribution box
 - How to drain if electricity fails
 - Need pumping every 5 years normally with 10 people
 - Pirana Septic system
 - Converts anerobic system to aerobic system
 - <https://pirana.biz/>

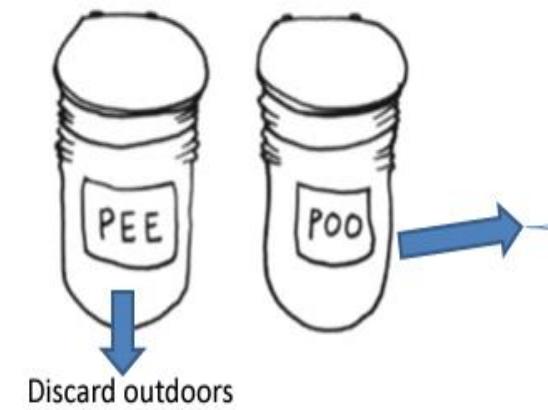


Toilets

- Protect your toilet if water supply off
 - 4" rubber ball and long sock
 - Coat ball/sock with vaseline and plug toilet
- Bag in toilet
- Commode
- Buckets – pee and poo (labeled)
- Kitty Litter, saw dust
 - absorbent & odor control
- Dispose of properly



Twin Bucket Emergency Toilet



- Plastic 5-gallon bucket
- Lids
- Plastic seat
- Plastic trash bags
- Absorbent carbon material to cover poo
 - Sawdust, shredded paper, coir fiber, kitty litter, etc.

From Sanitation and Hygiene slides

Emergency Sewer: Widespread

- Sewer
 - Quickly is overwhelmed
 - Twin Bucket system: Waste disposal a problem
 - Toilet liners. Blocking the toilet
- Septic system
 - Usually need pumping every 5 years for normal use
 - When use is 10-20x higher system becomes overwhelmed
 - Pirana system will help
 - Toilet paper and alternatives [23 toilet paper alternatives](#)

Personal Hygiene

There is a reason the church makes hygiene kits

- Oral hygiene: extra tooth brushes, tooth paste
- Feminine Hygiene Many times forgotten
- Hand Hygiene, Wash station
- Foot care
- Pest control
- Widespread disaster
 - Not all 3 million will bring their toothbrushes
 - Soap, Sanitizer all in short supply
 - Wash stations needed everywhere

Hand/Body Cleanliness

Hand / Body Cleanliness

- Bar soap
- Liquid hand soap
- Shampoo / Conditioner
- Bodywash liquid
- Hand sanitizer



Bar soap with nylon

Making soap

Sanitizer will be difficult to find

Hand wash stations to minimize water use

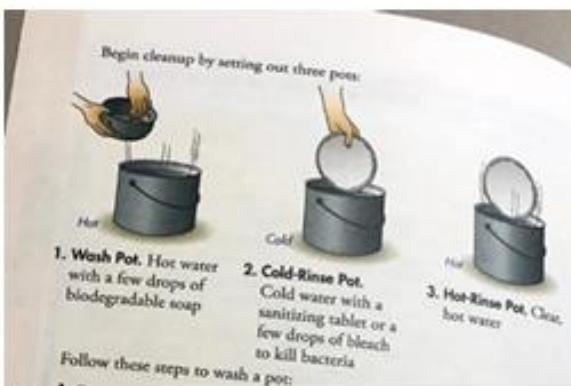
Nutrition in a disaster

- Cooking without power
 - Solar Oven SUNOVEN.com
 - Volcano stove, Dutch ovens with 500 lbs charcoal
- Cooking with food storage?
 - Beans and rice do not have required vitamins
 - Who can cook with food storage
- Utensils, Plates, Mesh bags
- Growing food, Sprouts to supplement vitamins
 - Dr James Lind and the British Navy. Lemons and Watercress sprouts
 - Trial in 1741. Adopted in 1791
- Widespread disaster
 - How and what do you feed 100 people at your house?



Dishwashing

- ✓ Three tubs / pots
- ✓ Dish soap
- ✓ Brush/scrubber
- ✓ Hot tongs
- ✓ Bleach
- ✓ Towel, mesh bag, etc.
- Pot 1: Wash w/ hot water & dish soap
- Pot 2: Cold-rinse w/ bleach or steramine sanitizing tablet
- Pot 3: Hot-rinse w/ clear hot water
- Airdry



1. Scrape dishes before washing
2. Wash the least soiled first
3. Camping soap preferred
4. Clean tubs by throwing out the soap tub first

Source: The Three Pot Method – www.blog.scoutingmagazine.org/2017/03/30/how-to-wash-dishes-at-campsite/

Medications in a disaster

- Any disruption of shipping will make medications hard to get
- 30 day supply is recommend by FEMA
 - Insurance wont let you get it
 - Can pick up prescriptions 3 days early in some cases. 10 months gets 30d
 - Pay cash and get it from the pharmacy directly
 - Ask for renewal when you change insurances
- 6-12 month supply Work with independent pharmacy or
 - [JASE Medical](#)
 - [The Wellness Company](#)
 - [Contingency Medical](#)
 - [Duration Health](#)

Medication Problems

- Potassium Iodide. Need to take immediately with Nuclear disaster
- Pharmacy Supplies will run short with large influx of people
- Antibiotic alternatives
 - Colloidal Silver
 - O3 Ozone water generator
 - Topical antibiotics
 - Herbal wound treatments
 - Stay healthy, Vit D, VitC, Zinc, Multivitamins
 - Infrared Sauna, Hyperbaric
 - Herbal antibiotics (Garlic, Honey, Ginger, Echinacea, Goldenseal, Clove, Oregano)
 - Natural antibiotics

Health first aid, Long term aid

- Medical resources will be in scarce supply
- First aid kit and Trauma bag
- Herbal Medicine Start learning now. Have hard copies
 - [Doom and Bloom Medical](#)
- Often forgotten areas. Compounded with large scale disaster
 - Baby needs, washable diapers
 - Female needs. Many preppers are men and forget this
 - Elderly needs. Walkers, Wheelchairs, Canes
 - Disability needs
- Often overlook supplies
 - Pets, combs, contraceptives, Electrolyte drinks, Wound wash, Games
 - [25 overlooked prepper supplies](#)



Laundry for a disaster

Laundry

- Clothesline, rope, rack
- Buckets, tubs, bathtub
- Wringer, mop bucket



Soap May need to make your own

Wonderwash portable washing

Lavario Portable clothes washer

Scrubba wash bag

Ceiling mounted drying rack

Other clotheslines or drying rack

Preparation for Elderly, Disabled and Kids

- Elderly and Disability Preparation
 - Medications,
 - Mobility Wheelchair, cane, Walker
 - First Aid
 - Hearing, Vision problems
- 24 Survival Skills every parent need to teach their child
 - [24 survival skills to teach kids](#)
 - Shelter, Fire, Water, First aid, Map and compass, Swimming, Self defense, growing food, Foraging, Wildlife encounters, Cooking, Hygiene

Vehicle Preparedness

- Water Pee bag (toilet supplies)
- First Aid/Trauma Personal Hygiene kit
- Knife Shovel
- Candle and matches Solar Charger
- Jumper cables Rope/Paracord
- Map and Compass Food Coast Guard meals
- Multitool Flashlight
- Duct tape Cash
- Vehicle emergency preparedness

Off Grid Skills to learn

We cant learn them all. We need a community

• Gardening	Raising Animals	Butchering
• Seed harvesting	Foraging	Hunting
• Canning	Smoking meat	Drying/FreezeDry
• Welding	Knitting	Knot Tying
• Soap making	Candle making	Shoemaking/repair
• Vehicle repair	Sewing	Basketweaving

Security Skills

- Concentric Circles
- Surveillance
- Neighbor Alliance
- Visual deterrence
 - (walk with confidence)
- Trail Cameras
- Scary Dogs
- Lighting
- Door hardening
 - 3 inch screws
- Window film
- Plastic to cover windows
- Weapons, Get Training!!!
- Pepper spray, Stun gun
- BYRNA nonlethal pepper balls
- Club, bat
- Bump Retreat
- Safe Room Need escape route
- Communication (HAM radio, GRMS)

Summary

<https://approachingready.com>

- Pandemic Preparedness
- Clean water is Key
- Sanitation
- Medication
- Laundry
- Prepare for disabled,
 - Large groups
 - Babies
- Vehicle Preparedness
- Master Preparation List
- Improve skills
- Network We cant do it alone
- Security
- Food production
- Food storage
- Eating with food storage
- Alternative cooking
- Prepping on a Budget
- Tips to share

Questions?



If you are prepared you shall
not fear DC 38:30

Thank you for coming

Neil Rawlins