

What To Do In A Nuclear Crisis

Nuclear Radiation Emergency Information

1-800-BE-READY (1-800-237-3239)

"The public response should be 'shelter and shower'. Sheltering (particularly at home) is prudent early in a radiologic event, because families congregate at home and showers, clean clothing, food, and water are available. Sheltering also provides authorities time to assess the situation more completely. Evacuation might be indicated later for people in some locations, depending on the specific situation and the extended dose estimates. In other locations, remaining sheltered may result in lower radiation exposure." (Flynn & Goans, 2006) [buy article / find in library](#)

See also "get inside, stay inside, stay tuned" from the CDC

What to do once you are inside (CDC), Decontaminating (CDC), Communication (CDC)

FAQs from the CDC | Limit contamination

Download and print a pamphlet with some basic information

If you are in an office - organize committees according to the categories on this website

The Basics

Supplies

- Supplies
- Water filtering
- Purification
- Food

Health

- First Aid
- Burns
- Wounds
- Homeopathy

Shelter/Communication

- Sanitation
- Shelter
- Communication
- Counseling and Coping Skills

Guides

- Survival guides to download
- Health Care Provider info

Research

- Research Management
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SAVE & PRINT

SURVIVAL MANUALS

- Evacuation Routes - Download this page
- External links:
- Nuclear Facilities by State - Nuclear Power Plant Evacuation Zones - Radiation Air Monitoring - State Radiological Emergency Preparedness Agencies - Radiation Control Programs
- Nuclear War Survival Skills FAQ: Shelter (highlights), Water (highlights), Food (highlights), First Aid (highlights)

SHOWER AND SHELTER - WHAT TO DO AT HOME AFTERWARDS

Please download and print this web page in case the internet is no longer accessible

Audio versions: (Short Film) - (Long Film pt1) - (Long Film pt2)

- (Clean Water Film pt3) - (Shelter Film pt4)

Download NWSS Survival Manual (27 MB) - Download Adobe Reader or skip to the basics

Hotlines for information:

- CDC at 1-800-CDC-INFO
- 1-800-BE-READY or 1-202-282-8000, 1-202-447-3543 TTY
- The Nuclear Regulatory Commission Office of Public Affairs can be contacted at 1-301-415-8200
- The Federal Emergency Management Agency (FEMA) can be reached at 1-800- 621-FEMA / TTY (800) 462-7585
- The Radiation Emergency Assistance Center/Training Site at 865.576.1005 (Ask for REAC/TS)
- The U.S. Department of Energy (DOE) at 1-800-DIAL-DOE

The Basics: Stay calm. Get inside, stay inside, stay tuned.

"Exposed skin and hair should be cleansed with soap and water repeatedly..."(Udeani & Aguilera, 2002) [buy article / find in](#)

"Removing clothing alone can decrease external radioactive contamination by 90%. Washing with soap and lukewarm or room-temperature water is effective and removes another 90% of contamination (about 99% of the total is removed after both steps have been performed)."(Flynn & Goans, 2006) [Details](#)

[How to decontaminate yourself from the \(link\) CDC.](#)

Further suggestions:

If you are outside: cover your mouth and nose with a wet cloth and dust off any radioactive particles. Upon entering a shelter - clean and cover any open wounds first to prevent cross contamination. Shower and change into clean clothes in the foyer area if possible. Do not use conditioner. Put the dirty clothes in a plastic bag. In general shower and shelter until you hear otherwise. Do not scrub or scratch the skin. Gently blow your nose, wipe your eyelids, eyelashes, and ears with a clean wet cloth. If you cannot shower, use a clean wet cloth to wipe your skin. You should also wear a dust mask, cover your skin as well as possible (with clean fabric), and consider protecting your eyes from particles in the air.

From that point you might consider collecting as much non-contaminated water as possible in clean containers, and then choose the best room to shelter in, set up communication systems, arrange sanitary conditions, and organize supplies and food. I would recommend that you print out select pages of the [survival guides](#) linked below in case you lose power or access to the internet at a later time. This page is intended to summarize key points at a glance. It has evolved since 2008 to be a condensed summary of the main points of nuclear survival literature. It includes fact checking references to encourage you to research all information you find online. The author is not a medical doctor or psychiatrist or expert in the field. Please consult with your physician or expert before attempting any medical or psychiatric treatment plan or operating heavy or dangerous equipment.

Emergency Information for a Nuclear Accident or Attack

[See comprehensive survival guides to download](#)

Supplies

- Water: [Indoor water sources](#), [filtering](#), [purification](#)
- [Food](#)
- [General listing of Supplies](#) for emergencies from the CDC

[How to keep warm from NWSS](#)

Radiation and Water:

Indoor water sources: Do not drink water from open water sources. Some researchers feel that water coming from a pipe underground during the first few hours may be safe if the pipes had not yet been contaminated. It should be collected and stored in clean containers (Harrison et. al., 2003).

Possible sources of water inside a shelter: Melted ice cubes, liquids from canned goods, water heater (be sure the electricity or gas is off and open the drain at the bottom of the tank), pipes, covered tanks. Some experts feel that water from toilet tanks (not the bowl) is either a last resort or *not* safe for use/consumption. Water from all sources should be purified before use. Consult an expert for instructions on how to safely access your [water heater if you choose to](#) (there is a severe burn hazard if you do this incorrectly without professional assistance).

Both FEMA and Ready.gov claim that water from toilet tanks, radiators, hot water boilers/home heating systems, water beds, swimming pools and spas are **not** safe water sources. There is a distinction between a [water heater and a hot water boiler \(radiator\)](#). The state of Louisiana website, however, cites the toilet tank (not bowl) as being a viable last resort. Most survival websites also encourage the use of available water in water heaters and toilet tanks if properly handled and purified.

Outdoor water sources (safest source listed first and the other sources listed in decreasing order of safety):

1. Water from deep wells and from water tanks and covered reservoirs into which no fallout particles or

fallout-contaminated water has been introduced.

2. Water from covered seepage pits or shallow, hand-dug wells. If the earth is not sandy, gravelly, or too porous, filtration through earth is very effective. <http://oism.org/nwss/s73p919.htm>

The [SAS Survival Handbook](#) lists the safest sources of water starting with the best as:

Underground wells and springs
Water in pipes and containers
Fast flowing rivers

Radiation Removal

Ways to remove radiation from water: [reverse osmosis](#), [activated carbon](#) and [ion exchange](#), lime softening, distillation, filtration (carbon, soil).

[Forbes has a good article](#) about the different ways to remove radiation from water.

Fact checking government websites: [FEMA library](#) | [Ready.gov water management](#) | [Food and water in an emergency from FEMA](#)

Fact checking from research article: Radiologic emergency: protecting school children & the public by Harrison TW. Gustafson EM. Dixon JK link, quote [How to find a journal article](#)

Reverse osmosis treatment (gore-tex fabric) is the most often mentioned way to keep radioactive plutonium and strontium out of drinking water. You probably need special equipment to accomplish this. You can [buy an economy grade system from several companies](#).

[About Reverse Osmosis from North Dakota State University and U.S. Department of Agriculture](#)

Public sector (nonprofit) fact checking websites: [Nuclear War Survival Skills](#), [Nuclear War Survival Skills \(II\)](#)

Distillation

Distillation may [remove some radiation from water \(from DOE\)](#). Distillation is probably the most efficient way to remove radiation from water without using special equipment. Basically you get a large pot and put a small rack inside on the bottom. Put a bowl on top of the rack and fill the bottom of the pot with water. Put the pot lid on upside down (with a knob in the middle) so any condensation drips in the middle into the bowl. Put ice cubes on top of the upside down lid to create a hot/cold barrier. Boil the water and wait for the condensation to accumulate. Make sure it has cooled before handling or drinking. There are many youtube videos on this topic.

Ways to distill water: [Stove / heat](#), [atmospheric water generators](#), [Bottles](#), [Solar still](#). You can also purchase [an appliance that distills water](#). You might research [convection-type vaporizers \(I cannot find one for purchase\)](#) - or [steam vaporizers](#).

[\(I have not found detailed research on steam vaporizers yet, but you should avoid aerosolized \(bubbling\) or cold water that would put non-pure water into the air\)](#). It is typically recommended to use distilled (rather than tap) water with vaporizers or humidifiers because they are not intended to purify water. If you already have one on hand you might consider researching it's usefulness in the case of steam vapor. Humidifiers (rather than vaporizers) sometimes use a fan that creates an undesirable aerosol effect. I imagine coffee and tea makers would produce steam for distillation as well (depending on the brand/model). If you are going to buy something - it would make more sense to just buy a counter top water distiller or reverse osmosis filter system.

Filtering

Since most people will not have equipment available there are alternative (non-guaranteed) methods.

Filtering through (dense clay) earth / Natural filter – [see NWSS for directions](#) or on page 79 [NWSS.pdf](#) or [healthyindeed.com](#). If you have a terrarium it's almost the same structure: Soil, fabric, pebbles.

From the top layer downwards (in a container): Water, porous fabric, clay soil 6-7", fabric, pebbles 1.5", sticks to prop it up and then a pan to catch the filtered water.

Settling (clay particles will carry most of the suspended fallout particles to the bottom) directions: [NWSS](#) or on page 79 [NWSS.pdf](#) or [healthyindeed.com](#).

Fill a bucket 3/4 full with water, dig up clay from 4 or more inches under ground and mix it into the water. 1" clay for every 4" water. Let settle for 6 hrs and then siphon or dip the water out.

Other ways to remove radiation from water: Ion Exchanger, A water softener/ cation exchanger, lime softening, gravity-type table-top canisters with a charcoal or other filter system (you should also strain that through a coffee filter), and the percolation of water by a distiller into steam that gets transferred back into pure water.

Fact checking gov websites: [EPA drinking water](#) | [Soil aquifer treatment \(SAT\) system: a case study - article on pubmed.gov](#) | [healthvermont.gov](#)

[Assessing the removal potential of soil-aquifer treatment system \(soil column\) for endotoxin from the Journal of Environmental Monitoring](#) | [Decontamination Efficiencies of Pot-Type Water Purifiers from PLoS One Journal](#)

[How to remove radiation from drinking water from West Va University](#)

In terms of future planning there are some [faucets](#) and other products that you can install that may filter radiation.

Print out [Chapter 8: Water NWSS](#), [Chapter 9: Food](#)

[Understanding Red Cross Recommendations for Treating Water in an Emergency \(ebook\)](#)

Purification

After filtering you do want to purify that water. Here are some ways to purify water (in general – not specific to radiation): **Boil** for 3-5 minutes (collect any water that evaporates). Let cool before drinking. If you pour it back and forth between 2 containers it will add oxygen and taste better (do not expose to radioactive dust). **Boiling will NOT remove radiation.** You can also add 4 drops of household bleach that contains 5.25% sodium hypochlorite per quart of water. Do not use bleaches that are scented or color safe. Mix and let stand for 30 minutes (should have slight bleach odor).

Distillation: boil water and collect the vapor to condense it back into water. May remove radiation though some sources debate the topic.

Fact checking references: Harrison TW. Gustafson EM. Dixon JK. Radiologic emergency: protecting schoolchildren & the public. [Journal Article, CEU, Exam Questions, Pictorial, Review] American Journal of Nursing. 2003 May; 103(5): 41-50. (35 ref) AN: 2003080375. [link](#), [quote](#)

And the American Red Cross [How to find a journal article](#)

Food:

Do not eat anything that has been exposed to radioactive fallout (make sure it is sealed and covered). Avoid foods with high salt content, dairy products, bones and seafood. The best choices are soups, vegetables and fruits. Keep cans covered so that fallout does not touch the metal. Do not reheat meat after it has been cooked to avoid food poisoning. Store your food in a cool, dry place off of the ground. In terms of out of doors food - underground tubers and underground vegetables are safest followed by smooth skinned fruits. If eating exposed animals avoid the thyroid gland, liver, and kidneys. [Fact checking references: SAS Survival Handbook](#) by John Wiseman and [Nuclear War Survival Skills](#)

Some foods you may have in the house that might help protect against radiation damage: Green and black tea; foods rich in beta carotene (orange or dark green leafy fruits and veggies); un-boiled miso, garlic (blocks radioactive isotope absorption); Circumin (curry); Ginger; Calcium (blocks absorption of radioactive materials); sardines (cellular repair); baking soda (protects kidneys from uranium); green leafy vegetables with chlorophyll, wheatgrass; broccoli, cabbage, cauliflower, brussel sprouts, kale, collard greens, bok choy, and mustard greens (prevent free radical damage); seaweed (prevent absorption strontium 90); carrots, sunflower seeds and apples; artichokes, beets and radishes (liver cleanse); sauerkraut and yogurt (promote healthy intestinal flora); Nutritional yeast (non-MSG); flax seeds; brazil nuts (remove heavy metals); reishii mushroom; Dried beans, lentils (vit B, antioxidants); cooked tomato paste (lycopenes); apple pectin; cilantro [from Greenville Ave Chiropractic](#), [A comprehensive list is given in this blog post \(with good links to journal articles for each remedy\).](#), [Foods that fight cancer](#), [lycopenes](#), [Pectin](#)

[This spreadsheet](#) template is a starting point for a guide to foods you may have in your pantry. You can

continue to fill it out as a way to take inventory. Trouble shooting: On older computers the sort may not function across all columns. It should ask you to expand the selection. If it does not - you can click control A, control C, and then open a new spreadsheet. Then click control V and paste the contents into a new sheet. Save it, and try to sort alphabetically. It should ask you to expand the selection if it is sorting properly.

More about food and water here: http://www.nukepills.com/docs/FEMA_Nuclear_War_Survival.pdf

Print out [Chapter 9: Food NWSS](#)

Experts: <http://www.crcpd.org/ATeam/Atteam.htm> The Advisory Team for Environment, Food and Health from the EPA, USDA, CDC, FDA

- Preparing Emergency Supplies - from the CDC
<http://www.emergency.cdc.gov/radiation/shelter.asp>

Food with a long shelf life—food for each member of the household for at least 3 weeks... Foods with a long shelf life includes ramen noodles (flavor packet expires), corn syrup, dried corn, corn starch, bleached flour sealed in an airtight bag, powdered milk sealed in an airtight bag. Foods that protect against radiation damage are listed above, but should be rotated according to expiration date. Primarily they include foods with betacarotene, curry/turmeric, baking soda, garlic, and vitamins like B,C,D. [See homeopathy vitamins and Food.](#)

Water—1 gallon per day per person for 3 weeks

A change of clothes and shoes—underwear, socks, sturdy shoes, and seasonal clothes as needed

Paper plates, paper towels, and plastic utensils—you will not have enough water to wash dishes

Plastic bags—sturdy ones to collect bodily wastes

Bedding and towels

Small Battery-operated radio and batteries—listen to emergency messages/conserves battery

Medicines—Have 2-3 weeks dose of your current prescription medicines in a labeled childproof bottle. Be sure to check the expiration date.

Toiletries—soap, hand sanitizer, toilet paper, deodorant, disinfectants, etc.

Flashlight and batteries or hand crank flashlight with cell phone charger.

A telephone or cell phone

Extra eyeglasses or reading glasses from the grocery store

Duct tape and heavy plastic sheeting—To seal the doors and any vents that open into your shelter for a short period of time if a radiation plume is passing over. 3 weeks of Pet food, baby formula, diapers, etc.

First aid kit—You can purchase a first-aid kit or prepare one yourself. Be sure to include the following items:

___ Sterile adhesive bandages ___ Sterile gauze pads in 2 inch and 4 inch sizes ___ Adhesive tape ___ Sterile rolled bandages ___ Scissors ___ Tweezers ___ Needle ___ Thermometer ___ Moistened towelettes ___ Antiseptic ointment ___ Tube of petroleum jelly or other lubricant ___ Soap or hand sanitizer ___ Latex or vinyl gloves ___ Safety pins ___ Aspirin or aspirin free pain reliever ___ Antidiarrhea medication ___ Laxatives ___ Antacids for stomach upset ___ Syrup of ipecac to cause vomiting if advised by the Poison Control Center ___ Activated charcoal to stop vomiting if advised by the Poison Control Center

Plastic bucket with lid, garbage bags with ties, bleach, soap, toilet paper, moist towelettes

Games, cards, books, and other entertainment (many of these things are sold at the dollar store).

Fact checking references:

Can we remove iodine-131 from tap water in Japan by boiling? – Experimental testing in response to the Fukushima Daiichi Nuclear Power Plant accident Chemosphere, Volume 84, Issue 9, August 2011, Pages 1282-1284 K. Tagami, S. Uchida ([link](#)) (NO you cannot)

Food safety regulations: what we learned from the Fukushima nuclear accident Original Research Article

Journal of Environmental Radioactivity, Volume 111, September 2012, Pages 83-99

Nobuyuki Hamada, Haruyuki Ogino ([link](#))

[How to find a journal article](#)

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First Aid

*Note - the author of this site is not a medical physician. These pages are for educational, communication and information purposes only and are not intended to replace or constitute medical advice or treatments. Please see disclaimer below.

- [Burns](#)

- [Homeopathic treatments](#)

- [Basic First Aid Guide to download](#)

Print out [Chapter 13: First Aid NWSS](#)

Removing radiation: In a nuclear accident or bomb the public should take **shelter and shower** with (preferably ph balanced) soap or shampoo. Do not use conditioner since it can bind radioactive material to hair protein. **Clean and cover wounds first** before showering to prevent cross-contamination. Remove clothing (removes 90% of contamination) and store in plastic bag. ([See also: Sanitation section.](#)) If you cannot shower or remove clothing- cover your mouth and nose with a damp cloth and brush debris off until you can remove clothing. If you remove clothing and shower, (with soap) that removes about 90 - 99% of contamination. Wear a dust mask.

Fact checking references: Nuclear terrorism: triage and medical management of radiation and combined-injury casualties. (includes abstract) Flynn DF; Surgical Clinics of North America, 2006 Jun; 86 (3): 601-36. [\(link\)](#), [quote How to find a journal article](#)

Main Medications: [Potassium Iodide](#) starting within first 4 hrs, [DTPA](#), [Prussian Blue](#), [Neupogen](#)

[Chart of types of radiation contamination and the treatment/medication/supplement to take to counteract it](#)
http://www.remm.nlm.gov/int_contamination.htm

Hypothetical remedy not 100% proven to work (in lieu of potassium iodide pills): Apply 8 ml or 4x8" patch of 2% tincture of iodine to the skin of the abdomen in a hand sized patch. This technique resulted in an 82% reduction in the uptake of 131I by the thyroid gland. Topical iodine solutions are NEVER to be ingested or swallowed, and should not be used if allergic to iodine ([see ki4u](#)).

For verification - see research done by Health Physicist Ken Miller, Hershey Medical Center ([link](#)).

It is not recommended to eat a lot of iodized salt as the iodine levels are not high enough and can be harmful. Do not drink topical iodine.

Fact checking references: [Table Salt from NPR](#) | [Effectiveness of skin absorption of tincture of I in blocking radioiodine from the human thyroid gland from the Health Phys Journal](#) | [Tincture of iodine keeps radiation away from Science News - possible home remedy in event of nuclear plant mishap](#) [How to find a journal article](#)

Burns:

Research consistently advises to **cover burns with a clean, sterile, non-adherent dressing to protect the burn from the air and germs. Some recent research suggests applying topical antibiotics such as bacitracin (for superficial burns) and silver sulfadiazine (for deeper burns)**, but older research recommends dry dressings. This is probably to prevent the application of butter, oil, cucumber juice or other salves / contaminants to burns (which increases [infection](#) risks – do not apply salves). The main goal is to prevent infection and protect the burn from the air. Infections are a major cause of mortality in the irradiated host because of immunosuppressive effects. It is important to pay attention to airway, breathing, and circulation. Burns from nuclear bombs are usually divided into flash burns and thermal burns. [This government website details recommended treatment of radiation burns](#). According to [REMM](#) the following short term treatment is recommended depending on the situation. Please consult with your physician before treating any injuries.

["Advanced Burn Life Support and REMM recommendations:](#)

- Cover wound with clean, dry sheet or dressing. NO WET DRESSINGS.
- Simple dressing if being transported to burn center (they will need to see the wound)
- Sterile dressings are preferred but not necessary
- Covering wounds improves pain
- Elevate burned extremities
- Maintain patient's temperature (keep patient warm)
- While cooling may make a small wound more comfortable, cooling any wound ... will cool the patient..."

REMM possible recommendations for long term care:

- "Wash wounds with soap and water..."
- Maintain temperature
- Topical **antimicrobials help prevent infection but do not eliminate bacteria**
- **Silver sulfadiazine** for deep burns
- **Bacitracin** and nonsticky dressings for more superficial burns"

Bacitracin is thought to stop the growth of certain bacteria relevant to radiation burns. ([link](#))

Please see [REMM](#) for further information about long term care etc.

Circumen/curry/turmeric has been shown to improve radiation burn conditions in many medical studies.

You might want to use unscented, mild, [deodorant without aluminum in it](#) (Aluminum free examples: Arm & Hammer Essentials Natural Deodorant, Fresh and some Axe or Oldspice classic deodorants). Research differs as to the issue of aluminum and radiation burns.

In addition - you can [research how to treat radiation burns in chemotherapy patients](#). Keep in mind that chemotherapy advice does not take into consideration the presence of fallout and emergency crisis conditions. Infection from topical ointments may be much more of a hazard in a crisis situation, and a possible primary cause of mortality should fallout stick to it and cause infection.

[Further information \(articles\) about radiation burns](#)

Fact checking: Nuclear terrorism: triage and medical management of radiation and combined-injury casualties by Flynn DF, Goans RE. ([link](#)) and [Diseases and Disorders](#), Marshall Cavendish Corporation, and Medical Treatment of Radiological Casualties: Current Concepts. Annals of Emergency Medicine V45,6. Koenig, Goans, Hatchett, Mettler ([link](#)). [CDC](#)

[more details](#)

Wounds:

Clean and cover any open wounds first to prevent cross contamination. If your skin is covered in radiation - you do not want water to carry radiation into any open wounds. Cover wounds before cleaning other parts of the body. Wounds are a risk factor in spreading contamination. ([CDC](#)) "A person is internally contaminated if radioactive material is breathed in, swallowed, or absorbed through wounds." ([HPS](#)) "People who are internally contaminated can expose people near them to radiation from the radioactive material inside their bodies. The body fluids (blood, sweat, urine) of an internally contaminated person can contain radioactive materials. Coming in contact with these body fluids can result in contamination and/or exposure." ([CDC](#))

Homeopathic [vitamins/remedies for the aftermath](#) (some not medically proven): [Bee Pollen](#), [Ginkgo](#), [Goldenseal](#), [Gotu Kola](#), [Vitamin B and D](#), [Vitamin C \(research\)](#), [Bifidus](#), [Chlorella](#), [Chlorophyll](#), [N-acetylcysteine \(NAC\)](#), [Superoxide dismutase](#), **Circumen (curry or turmeric)** ([research](#)), Calcium is thought to help prevent uptake of radioactive strontium, Magnesium helps absorption of calcium and potassium- [AltCareDex Medicines](#) May 1, 2008 pPE0331 [More herbs](#). Sunflowers and marijuana are also used to remove radiation from soil in the aftermath. [You may view a more comprehensive list here.](#)

[Chart of types of radiation contamination](#) and the treatment/medication/supplement to take to counteract it http://www.remm.nlm.gov/int_contamination.htm

[Library database for natural medicine: naturalmedicines.therapeuticresearch \(requires library subscription\)](#)

Highlights from naturalmedicines database:

Reasonably good (but not officially proven) scientific evidence: probiotic lactobacillus rhamnosus for diarrhea, belladonna for radiodermatitis, echinacea for low white blood cells, ginseng for fatigue, honey for mucositis, zinc for inflammation/mucositis

What does not work: aloe, pantothenic acid, sweet almond

Traditional / unproven: cordyceps sinensis, holy basil, milk thistle, rutin (mucus)

[References for diet in a radiation emergency](#)

First Aid Manual you can download http://www.au.af.mil/au/awc/awcgate/army/fm4_25x11.pdf .

Fact checking: Nuclear terrorism: triage and medical management of radiation and combined-injury casualties. (includes abstract) Flynn DF; Surgical Clinics of North America, 2006 Jun; 86 (3): 601-36.

Management of nuclear casualties. (includes abstract) Udeani JC; Topics in Emergency Medicine, 2002 Jun; 24 (2): 40-6, 79-82 [quote](#)

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[Details - abstracts of medical articles](#)

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Sanitation

Before you enter a shelter:

Remove the outer layer of your clothing first to reduce external contamination and length of time exposed. Place clothing in plastic bag or corner of room where people are not located.

Wash wounds first and then cover them with waterproof dressings before washing other parts to avoid cross contamination. Keep cuts and wounds covered and be careful not to damage the skin.

Wash all the exposed parts of your body with soap and lukewarm water. Avoid spreading contamination to parts of your body that were covered. You can cut hair and nails if appropriate. If possible shower and shelter. Fact checking: <http://www.emergency.cdc.gov/radiation/contamination.asp> See also First Aid section

Once inside the shelter set up a de-contamination area with a sheet in the foyer so that people can reduce the spread of radiation.

Supplies for sanitation

Medium plastic bucket with lid, garbage bags with ties, bleach, soap, toilet paper, moist towelettes.

Build a makeshift toilet: place a garbage bag inside the toilet bowl or make your own with a bucket and 2 boards. After each use pour bleach into the container to avoid infection. Cover when not in use. Dispose of waste in a pit away from any water supply. Alternately wrap in newspapers and store in large can with tight fitting lid and place outside.

Disinfectants: 1 part chlorine bleach to 10 parts water.

Intestinal Ailments: Keep body, hands and eating utensils clean, use paper plates or eat from original containers, wash and peel all fruits and vegetables, keep all food covered, prepare only what can be eaten at each meal.

Insects: Keep area clean, repair holes

From The Disaster Handbook, University of Florida Institute of Food and Agricultural Sciences

Shelter – where is it safest?

In the event of a nuclear emergency, depending on the situation, the public response should usually be **“shelter and shower”** pending further instructions. Evacuation might be recommended later, but sheltering may result in lower radiation exposure (Flynn, 2006). If it is a nuclear power plant accident or the explosion of a radioactive dirty bomb, you may need to evacuate. If possible, bring pets inside. The three important factors are shielding, distance and time (from the blast). For information about deciding whether to shelter or evacuate see announcements from your local government and this article. Some state by state general evacuation routes are listed at USA Evacuation Routes. You can also check to see nuclear power plant evacuation zones. A table of criteria for deciding whether to shelter or evacuate is located on the NWSS chapter 4.

Location within the building: You want as much distance and the thickest barrier (walls) as possible between you and the radiation. **It is best to stay in a centrally located room (middle) or basement with few windows.** Some researchers contend that after the initial blast it may be safer to avoid the basement, roof, and anywhere contaminants may settle. It depends on if there is radiation in the air. The intensity of the radioactive fallout decreases gradually with time. You should not go outside unless a trusted media source tells you to.

- FEMA suggests building a shelter (inside a room) under a wooden desk with layers of books or other materials along the outside. It is also suggested to try to build extra shielding into the walls of the room by stacking books, bricks, and other non radioactive items against the walls.
- There are smart phone apps for detecting radiation (such as near a wireless router) like "WiFi Radiation" that appear to work.

Fact checking: <http://www.emergency.cdc.gov/radiation/emergencyfaq.asp>, (Harrison et. al., 2003), <http://www.emergency.cdc.gov/radiation/shelter.asp>, 1 dash 29 (p. 53) Best locations to shelter in a building (middle room <http://www.fema.gov/pdf/plan/prevent/rms/453/fema453.pdf>), 1 dash 17 (p.41) sheltering during a nuclear emergency

Shut off the AC or vents. Avoid ventilation blowers or pipes. If you must ventilate - then make sure the vent is not straight, but turns - as radiation does not flow around corners as well as air (according to the Facility Manager's Emergency Preparedness Handbook). Close and lock all windows, exterior doors and openings to the outside. It is best to have a hard-wired phone in the room(s). If you have voicemail change the recording. Listen to the radio or TV until you hear it is safe.

Best types of buildings: Houses with basements, large multi story structures, closed parking garages, tunnels. Single story wood homes with no basements and cars/vehicles would be minimally adequate. You can build additional shielding into the outer walls if possible.

Materials for shielding:

- Alpha particles can (in theory) be stopped by paper (primarily dangerous when inhaled, in eyes, open wounds). Sources of AP: Radon
- Beta particles are thought to be stopped by glass or foil (primarily dangerous when inhaled or on skin). Sources of BP: Radioactive iodine, some medical imaging procedures, contaminated scrap metal.
- Gamma rays can be blocked by concrete, lead, or steel (dangerous internally and externally). Sources of GR: They are emitted from the nucleus of some unstable (radioactive) atoms, solar flares, pulsars, nova and super nova explosions, the falling of materials into black holes. **Gamma rays are considered the primary hazard to the general population during most radiological emergencies.**
- Neutrons are best blocked by water or concrete. Sources of N: Released during nuclear fission, medical therapies.

<http://www.epa.gov/radiation/rert/radfacts.html>

Evacuation Plans and Procedures etool from the US Dept of Labor

If you are near the blast when it occurs: Turn away, cover your eyes, - drop to the ground face down and place your hands under your body. Remain flat until 2 shock waves pass. If you are outside find something to cover your mouth. Remove any dust from your clothes while covering your mouth and nose - then shower and shelter.

OSHA advice for businesses if recommended to shelter: Ask customers to stay, have them call their emergency contact, change the voice mail of the business, lock exterior doors and close windows, air vents, and fireplace dampers. Have employees familiar with your building's mechanical systems turn off all fans, heating and air conditioning systems, and clothes dryers. Close the window shades, blinds, or curtains; Gather essential disaster supplies; Select interior room(s) above the ground floor, with the fewest windows or vents; It is ideal to have a hard-wired telephone in the room; Consider using plastic sheeting to seal windows, doors, and air vents (without interior fumes); Write down the names of everyone in the room; Listen to the media for further instructions.

Evacuation technique: Travel at right angles to the fallout path away from the plume centerline (lateral evacuation). Take disaster supplies with you. Turn everything off and lock it up (including furnace). Assist the elderly and disabled. Fact checking: Planning Guidance for Response to a Nuclear Detonation by Federal interagency committee led by the Executive Office of the President & FEMA _ and bt.cdc.gov. See page 20 for an illustration of lateral evacuation., lateral visual example

Quotes from Analysis of sheltering and evacuation strategies for a Chicago nuclear detonation scenario:
"The best strategy for any individual depends critically upon the nature of the fallout plume, the quality of immediately available shelter, and the ability to execute effective evacuation away from the most hazardous zones...Out side exposure should be avoided during the first few hours following the detonation when the radiation hazards in the high dose rate zones are the highest. The only exception is for those in very poor shelter who should take the fastest path to better shelter.

The radiation protection capabilities of many structures in the Chicago region are quite good. If all residents in the hazardous fallout region adopt a shelter-in-place strategy, the total number acute radiation casualties is estimated to be ~3,600, as compared to ~100,000 casualties if all are outdoors and unsheltered. Some further reductions in casualties can be realized if those in the poorest shelters transit to better shelters soon after the detonation." (Brandt LD & Yoshimura AS)

<http://prod.sandia.gov/techlib/access-control.cgi/2011/116720.pdf>

There are several types of evacuation scenarios listed on [page 31](#).
Radial evacuation away from detonation location [is explained on p. 19, 20.](#) of
<http://prod.sandia.gov/techlib/access-control.cgi/2011/116720.pdf> (Brandt LD & Yoshimura AS)

[Nuclear Power Plant evacuation zones](#) | [CDC Evacuation Radiation](#) | [Article on Nuclear Evacuation zones](#)

[OSHA evacuation tool](#) | [Planning Protective Action Decision Making: Evacuate or Shelter in Place? 113 KB PDF](#)

Print out [Chapter 5: Shelter NWSS](#) and [Chapter 4: Evacuation](#)

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Communication

The Emergency Alert System is a national and state-wide public warning system that allows presidential addresses to the American public over TV, cable and radio systems during emergencies. You should watch tv or listen to the radio for updates. Likewise your state troopers will also have information. [Electromagnetic pulses](#) may damage equipment, and battery operated radios are the safest source of information. You should put electronics into a completely sealed metal box that is lined with card board to protect them from EMP. Read instructions [here](#). You can use a filing cabinet, but you must seal it with metal tape. Some people think you can make a protectant out of foil with a cardboard liner. Keeping electronics away from other metal objects is also recommended. <https://www.fcc.gov/consumers/guides/emergency-communications>
You can find state by state information here: <http://www.ibiblio.org/rcip/evacuationroutes.html>

National Hotlines for information:

- CDC at 1-800-CDC-INFO
- 1-800-BE-READY or 1-202-282-8000, 1-202-447-3543 TTY
- The Nuclear Regulatory Commission Office of Public Affairs can be contacted at 1-301-415-8200
- The Federal Emergency Management Agency (FEMA) can be reached at 1-800- 621-FEMA / TTY (800) 462-7585
- The Radiation Emergency Assistance Center/Training Site at 865.576.1005 (Ask for REAC/TS)
- The U.S. Department of Energy (DOE) at 1-800-DIAL-DOE

Ways to communicate and get information:

Skype <https://login.skype.com/account/signup-form>

Skype is the standard for free online phones. You can call other people with a skype account for free, but usually to call a normal phone number you need to pay for some minutes. It is helpful for calling family members without paying for long distance. You can also video chat. You will want to ask them what their skype username is.

Whistle phone <https://www.whistlephone.com/>

This phone is free for one month and it works. You can call a regular phone without paying extra. The only issue was that without a headset I had to press the mute button when the person was speaking to me or they heard themselves echoing through the speaker. Probably headphones would take care of that.

Find out what your local "alert" station is <http://www.theradiosource.com/resources/stations-alert.htm>

Find your emergency radio station: http://www.nws.noaa.gov/nwr/coverage/county_coverage.html

[You can also search for your local Highway Advisory Radio \(HAR\) set up by local transportation organizations.](#)

1610 AM radio

TV – most tv stations have online videos you can watch for free directly from [their website](#).

http://www.dhs.gov/xlibrary/assets/national_emergency_communications_plan.pdf

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Counseling and Coping Skills

- What is PTSD?
- How can I stop a panic attack?

What can I do now?

Remain informed; pay attention to emotional health; monitor physical health; focus on positive actions like taking inventory of emergency supplies and providing support to others; maintain contact with those around you; hold a picture in your mind of the best possible outcome; and maintain spiritual practices that provide emotional strength.

"Resilience factors that may reduce the risk of PTSD include:

- Seeking out support from other people, such as friends and family
- Finding a support group after a traumatic event
- Feeling good about one's own actions in the face of danger
- Having a coping strategy, or a way of getting through the bad event and learning from it

• Being able to act and respond effectively despite feeling fear.”
<http://www.nimh.nih.gov/health/publications/post-traumatic-stress-disorder-ptsd/what-are-the-symptoms-of-ptsd.shtml> The National Institute of Mental Health (NIMH)

- 6 steps to self control when dealing with panic attacks:
 - 1/ Recognize that you are feeling anxious and accept your body feelings as a sign something is bothering you.
 - 2/ Give yourself permission to feel anxious (of course you feel anxious and it's okay).
 - 3/ Breath – inhale through your nose slowly for 2 seconds (one, one thousand, two, two thousand), exhale through your mouth for 4 seconds. Repeat for at least 60 seconds
 - 4/ Use positive dialogue – “It's just anxiety. It will go away. I will not lose control. It won't hurt me.”
 - 5/ Get busy – Do something to release this self induced stimulation. Walk, clean, organize. Distract yourself from how you are feeling.
 - 6/ Try to see a little humor in the way you feel. Give yourself permission to feel weird for a little while. From The Midwest Center for Stress and Anxiety

Read about specific psychological concerns for a radiation event.

- Sample coping skills (until you can seek therapy with a licensed psychiatrist)

Safe place: Picture an imaginary place in your mind where you are completely safe. This place should not be dependent on anyone else. It should be completely under your control. Only you decide who or what can get in or out of your safe place. Imagine the plants, smell, taste and touch.

Challenge negative thoughts: Ask yourself: Is this a productive thought? Is it helping me get closer to my goal? If it's just a negative thought you're rehashing, then you must be able to say to that thought: 'Stop.' "That's difficult to do, but it's very important," <http://www.webmd.com/anxiety-panic/guide/coping-with-anxiety?page=2>

Visualize a “container.” For me, this is usually a purple box. I imagine that I am putting the memories, or whatever was causing me mental pain at the time, into the box.

What is PTSD? from NIMH

<http://www.nimh.nih.gov/HealthInformation/ptsdmenu.cfm>

Post-Traumatic Stress Disorder, PTSD, is an anxiety disorder that can develop after exposure to a terrifying event or ordeal in which grave physical harm occurred or was threatened. Traumatic events that may trigger PTSD include violent personal assaults, natural or human-caused disasters, accidents, or military combat.

According to the The National Institute of Mental Health (NIMH)

“PTSD can cause many symptoms. These symptoms can be grouped into three categories:

1. Re-experiencing symptoms:

- Flashbacks—reliving the trauma over and over, including physical symptoms like a racing heart or sweating
- Bad dreams
- Frightening thoughts.

Re-experiencing symptoms may cause problems in a person's everyday routine. They can start from the person's own thoughts and feelings. Words, objects, or situations that are reminders of the event can also trigger re-experiencing.

2. Avoidance symptoms:

- Staying away from places, events, or objects that are reminders of the experience
- Feeling emotionally numb
- Feeling strong guilt, depression, or worry
- Losing interest in activities that were enjoyable in the past
- Having trouble remembering the dangerous event.

Things that remind a person of the traumatic event can trigger avoidance symptoms. These symptoms may cause a person to change his or her personal routine. For example, after a bad car accident, a person who usually drives may avoid driving or riding in a car.

3. Hyperarousal symptoms:

- Being easily startled
- Feeling tense or “on edge”
- Having difficulty sleeping, and/or having angry outbursts.”

<http://www.nimh.nih.gov/health/publications/post-traumatic-stress-disorder-ptsd/what-are-the-symptoms-of-ptsd.shtml> The National Institute of Mental Health (NIMH)

"There are a number of effective medications available to treat the symptoms of PTSD, including antidepressants and some newer anti-anxiety or mood-stabilizing medications. Many individuals with PTSD do well with treatment that includes both psychotherapy and medication. Cognitive-behavioral therapy (CBT), including prolonged exposure (PE), Cognitive Processing Therapy (CPT), and Skills Training in Affect and Interpersonal Regulation (STAIR) is effective for many patients with PTSD and involve working closely with a therapist to systematically process the traumatic event, identify and modify negative thoughts that interfere with recovery from the trauma, and learn to face situations or feelings associated with the trauma. In addition, CBT helps individuals learn skills for managing difficult emotions and overcoming difficulties in interpersonal relationships."

How To Use Journaling to Cope with PTSD - In regard to PTSD in particular, expressive writing has been found to have a number of benefits including improved coping and posttraumatic growth.

<http://ptsd.about.com/od/selfhelp/ht/writing.htm>

Positive Coping Skills for PTSD:

Learning about PTSD, talking, relaxing,

Negative coping skills: alcohol or drug use, violence, anger, unhealthy eating.

<http://www.ptsd.va.gov/public/pages/coping-traumatic-stress.asp>

Coping skills for Trauma (quick fixes to stop a panic attack)

<http://www.ibiblio.org/rcip/copingskills.html>

Coping skills for anxiety for children <http://www.theplumtree.net/activities/>

Coping with worry and anxiety

http://www.drbeckham.com/handouts/CHAP05_COPING_WITH_WORRY_AND_ANXIETY.pdf

PFA is a systematic set of helping actions aimed at reducing initial post-trauma distress and supporting short- and long-term adaptive functioning. PFA is designed as an initial component of a comprehensive disaster/trauma response, and it is constructed around eight core actions: (1) contact and engagement, (2) safety and comfort, (3) stabilization, (4) information gathering, (5) practical assistance, (6) connection with social supports, (7) information on coping support, and (8) linkage with collaborative services.

[Psychological first aid in radiation disasters training course](#)

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Research on Nuclear Radiation & Effects

Best links:

Frequently Asked Questions About A Nuclear Blast

<http://www.emergency.cdc.gov/radiation/nuclearfaq.asp>

How You Can Limit Contamination

<http://www.emergency.cdc.gov/radiation/contamination.asp>

Nuclear blast from Ready.gov

<http://www.ready.gov/nuclear-blast>

Good general overview information:

News & Terrorism Communicating in a Crisis - A fact Sheet from the national academies and the US department of homeland security - Nuclear Attack

http://www.dhs.gov/xlibrary/assets/prep_nuclear_fact_sheet.pdf

http://www.dhs.gov/xlibrary/assets/prep_radiological_fact_sheet.pdf

Are you ready? Nuclear Blast

<http://www.ready.gov/nuclear-blast>

More in-depth information:

Planning Guidance for Response to a Nuclear Detonation by Federal interagency committee led by the Executive Office of the President & FEMA

[EPA](#) or [Search](#)

The Nuclear/Radiological Incident Annex (NRIA) to the National Response Framework (NRF)

http://www.fema.gov/pdf/emergency/nrf/nrf_nuclearradiologicalincidentannex.pdf

Describes the policies etc of the Federal departments involving release of radioactive materials to address

the consequences of the event.

Nuclear War Survival Skills from the Oregon Institute of Science and Medicine
<http://www.oism.org/s32p903.htm>

International Physicians for the Prevention of Nuclear War (IPPNW)
<http://www.ippnw.org/>

Conference of Radiation Control Program Directors
<http://www.crcpd.org/>
See link for publications

Radiation Emergency Management (game plans)

Suggestion for office procedure:

Organize committees according to the categories on this website (and any additional topics), and assign duties to each group of staff members. Committee names might include: **Supplies** (Water - Food) / **First Aid** (Burns, Wounds, Homeopathy) / **Sanitation** / **Shelter** / **Communication** / **Counseling and Coping Skills** / **Research** / **Management**

Simply copy paste the above committee names into word documents, print them out, and either assign them, or ask staff to sign up. Place the sign up sheets in a meeting room. It may help if you write "sign up here" under the name of the committee.

OSHA advice for businesses if recommended to shelter: Ask customers to stay, have them call their emergency contact, change the voice mail of the business, lock exterior doors and close windows, air vents, and fireplace dampers.

[CDC Radiation Emergency Management](#)

[Population Monitoring Guide \(how to manage a radiation emergency\).](#)

[Communication in a nuclear emergency from the CDC](#)

[Radiological Terrorism: Tool Kit for Public Health Officials](#)

[A Guide to Operating Public Shelters in a Radiation Emergency February 2015](#)

[Message templates for the first few hours of a nuclear weapon emergency \(archived copy from CDC website\)](#)

[Responding to a Radiological Dispersal Device](#)
or <https://www.remm.nlm.gov/rdd.htm>

Emergency Communication and Information Issues in Terrorist Events Involving Radioactive Materials -

[Trouble shooting the public's response to radiologic emergency procedures \(instructions they don't understand or do not follow\)](#)

Examples:

What does shelter in place mean?

Travelling to get children instead of sheltering in place.

Reactions of Prayer, helplessness, confusion, fatalism, or futility.

[RAD Resilient City - City preparedness for a nuclear situation](#)

[During a Nuclear Power Plant Emergency](#)

[State and Local Planners Playbook for Medical Response to a Nuclear Detonation](#)

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Hospital and health care provider emergency procedures

CDC pocket guide for clinicians for radiological emergencies

Radiation Emergency Medical Management guidance on diagnosis and treatment for health care providers from the US dept of health and human services

<http://www.remm.nlm.gov/>

The above **REMM** website has extensive, and well organized categories of information specifically for health care providers dealing with radiation and radiation burns.

Medical Planning and Response Manual for a Nuclear Detonation Incident: A Practical Guide from the United States Department of Health and Human Services

Nuclear terrorism: triage and medical management of radiation and combined-injury casualties. (includes abstract) Flynn DF; Surgical Clinics of North America, 2006 Jun; 86 (3): 601-36 ([link](#)).

Management of nuclear casualties. Udeani JC; Topics in Emergency Medicine, 2002 Jun; 24 (2): 40-6, 79-82 ([link](#)).

Manual for First Responders to a Radiological Emergency from the International Atomic Energy Agency. ([link to pdf](#), [alt link](#))

State and Local Planners Playbook for Medical Response to a Nuclear Detonation

[Quotes from above articles](#)

Further **Radiation Burn articles** for medical professionals

[Articles for medical professional management on **how to coordinate a nuclear emergency**](#)

Survival guides to download - these are the most comprehensive I have found.

Nuclear War Survival Skills is widely thought to be one of the best overall (free) guides to nuclear war survival. You can download a copy of NWSS as a 27 MB PDF from a number of different sources.

NWSS is a published book by Cresson H. Kearny who has a BS in Civil Engineering from Princeton and an MS in Geology from Oxford University. NWSS was originally published by the Oak Ridge National Laboratory, a Facility of the U.S. Department of Energy.

It is available for [purchase](#), but also free to download as a pdf. The author worked for Oak Ridge National Laboratory at the time of publication. [More about Cresson Kearney](#)

"He was first of all concerned with expediency and with testing. He would only put his name on something that he knew worked and that would be of use by ordinary people without specialized equipment... He strove to be productive as long as he was conscious. His life was full of purpose; our survival, should the worst come to pass."

It is very comprehensive and has a lot of practical information for a person already involved in a nuclear / radiation incident. Since it is over 300 pages long I would recommend choosing select chapters to print out.

Printing instructions: It may be easier to just print from the menu of the website version.

Recommended chapters to start with:

[Chapter 5: Shelter](#) or [Ch 5 pdf](#)

[Chapter 8: Water](#) or [Ch 8 pdf](#)

[Chapter 9: Food](#) or [Ch 9 pdf](#)

[Chapter 13: First Aid](#) or [Ch 13 pdf](#)

[Index - See lower left menu](#)

For the PDF: See page 6 table of contents first (type 6 into adobe reader). If you click on the page numbers in the square to the right - it will scroll to about the correct page (you might need to scroll one page down because of the intro page). Ch. 5 Shelter, 8 Water, 9 Food, 13 First Aid.

If you are printing - be aware that the book page numbers do not match the pdf page numbers. You may need to add 7 to the page number listed in the book (upper left corner of white page) to equal the pdf page number (see upper left corner of computer screen next to the blue up & down arrows).

[Search for alternate download links.](#) Also available from [Google books](#) and [Amazon](#).

ISBN-10 094248701X ISBN-13 9780942487015

Nuclear Detonation Preparedness - Communicating in the Immediate Aftermath

From the US Dept of Health and Human Services REMM.

FEMA Nuclear War Survival 1985

This is a fairly pragmatic guide intended for the general public. Probably not as comprehensive as NWSS, but a good comparison in case you are fact checking or looking for consistency.

Planning Guidance for Response to a Nuclear Detonation or [Amazon](#)

This guide is reassuringly linked directly from the EPA's website. It is, however, intended more for military training than for the general public.

Ki4u Guide on Nuclear Accident Preparation [pdf](#) or [html](#)

This is a good, brief guide on what to do just before and during a nuclear accident. It also covers appropriate sheltering techniques and supplies. This website in general is a good resource on nuclear preparedness, but not affiliated with any peer reviewed publication that I am aware of. The advice I have read on the Ki4u website is generally consistent with what I have read in federal government and peer reviewed resources (more so than other survival websites).

Bibliographies

Radiation Protection Risk Assessment from the EPA

<http://www.epa.gov/rpdweb00/assessment/bibliography.html>

Radiation Injury bibliography for health care providers

http://www.remm.nlm.gov/remm_SourcesofRadInfo.htm

A comprehensive list of all prepper books

<http://www.wildriverrogues.com/complete-list-of-every-prepper-book-ever-recommended/>

Research guides (pathfinders):

[http://apus.campusguides.com/content.php?](http://apus.campusguides.com/content.php?pid=339892&sid=2778483)

[pid=339892&sid=2778483http://libguides.richmond.edu/content.php?pid=46420&sid=683518](http://libguides.richmond.edu/content.php?pid=46420&sid=683518)

<http://www.hSDL.org/>

http://www.lrc.fema.gov/path_nuclear.html

http://www.lrc.fema.gov/path_ems.html

http://www.lrc.fema.gov/em_hub.html

<http://guides.gulfcoast.edu/content.php?pid=256495&sid=2117112>

<http://www.ipPNW.org/medicine-and-global-survival.html>

<http://www.radiationanswers.org/radiation-resources.html>

Radiation research - see articles, books, online resources and scientific reports

http://libguides.broward.edu/nuclear_weapons

Books:

[This is a good listing of books on nuclear survival](#)

[Nuclear War Survival Skills](#) by Cresson Kearney

U.S. Army Survival Handbook by the Department of the Army

In Time of Emergency: A Citizen's Handbook on Nuclear Attack and Natural Disasters by the Department of Defense

Life after doomsday: A survivalist guide to nuclear war and other major disasters by Bruce D Clayton

Survival Guide: What to Do in a Biological, Chemical, or Nuclear Emergency by Angelo Dr Acquista

U.S. Armed Forces Survival Guide by John Boswell

SAS Survival Handbook by John Wiseman

This is a very good comprehensive, general survival book that covers many disaster scenarios. It focuses mainly on out of doors survival, and includes information about finding and purifying water. Page 556 - 560 has information specific to nuclear emergencies. Pages 561 - 571 cover sheltering in the home. I would recommend buying it if you are just going to buy one survival book.

How to Survive the End of the World as We Know It by James Wesley Rawles

U.S. Armed Forces Nuclear, Biological And Chemical Survival Manual by Dick Couch (Author), John Boswell (Author)

Stronger in the Broken Places by James Lee Witt and James Morgan

This book is more of a guide on how to manage a group of people or a business during a crisis. It covers maintaining a positive attitude and avoiding blame. It is very well written. The author is a former FEMA director (prior to Katrina).

Facility Manager's Emergency Preparedness Handbook by Bernard T. Lewis and Richard Payant page 220 – 224 details nuclear blast information. The rest of the book is about protecting your business from disasters.

Other US Government associated websites on radiation emergency resources:

Ready.gov <http://www.ready.gov/document/be-informed-radiation-threat>

Center for Disease Control and Prevention: <http://www.bt.cdc.gov/radiation> ,
<http://www.emergency.cdc.gov/radiation/healtheffects.asp>

Department of Homeland Security: <http://www.dhs.gov/index.shtm>

Department of Energy: <http://www.energy.gov/> .

Environmental Protection Agency: <http://www.epa.gov> , <http://www.epa.gov/radiation/all.html>

Nuclear Regulatory Commission: <http://www.nrc.gov>, FAQ page <http://www.nrc.gov/about-nrc/emerg-preparedness/faq.html>

Federal Emergency Management Agency: <http://www.fema.gov> .

Department of Justice: <http://www.usdoj.gov> .

Federal Bureau of Investigation: <http://www.fbi.gov> .

Department of Health and Human Services: <http://www.hhs.gov> .

Transportation Security Administration: <http://www.tsa.gov/public/> .

National Nuclear Security Administration: <http://www.nnsa.doe.gov/> .

Radiation Accident Assistance Center <http://orise.orau.gov/reacts/>

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Conflict Resolution and Mediation in potentially violent situations

The general technique is to repeat/paraphrase the information someone is giving you in your own words.

That way you can determine if there has been an initial misunderstanding. Often people are arguing about two different things without knowing it.

The other technique is called verbal judo. With verbal judo you can tell the upset individual "I hear/accept what your are saying...but here is another way of looking at it." Always give people several options even if only one of them is preferable. People like options. Remember to stand at an angle rather than squaring off in front of them. Standing at an angle is less confrontational. Also remember to stand far away enough that you have some safety. Put one foot slightly behind you so that if someone pushes you - you won't fall over easily.

[For further information see this page on conflict resolution \(located on another page to reduce paper usage\).](#)

<http://www.ibiblio.org/rcip/conflictres.html>

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Emergency Forms

Create forms to:

- Organize your information
- Contact information
- Radio frequencies to tune in (make your own)
- Medical information

Medical History Forms from MIT

<https://medical.mit.edu/forms-documents>

Medical History forms from Wright State University

<http://www.wright.edu/student-affairs/health-and-wellness/student-health-services/forms-and-resources>

Nebraska University Medical History Forms

<https://health.unl.edu/forms>

HIPAA form sample

<https://www.aafp.org/fpm/2003/0200/fpm20030200p29-rt2.docx>

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Resources:

[How to find a journal article](#) - many of these articles can be found in databases intended for nursing students. Otherwise you can just search by the journal title in your library database. Most of them should be fully online.

Bairati, I. (2005). Randomized trial of antioxidant vitamins to prevent acute adverse effects of radiation therapy in head and neck cancer patients. *Journal of Clinical Oncology*, 23(24),: 5805-13.

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Flynn, D., Goans, R. (2006). Nuclear terrorism: triage and medical management of radiation and combined-injury casualties. *Surgical Clinics of North America*, 86 (3), 601-36. ([Link](#))

Funabashi, Y., Kitazawa, K. (2012). Fukushima in review: A complex disaster, a disastrous response. *Bulletin of the Atomic Scientists*, 68(2), 9-21. 13.

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Hamada, N., Ogino, H. (2012). Food safety regulations: what we learned from the Fukushima nuclear accident. *Journal of Environmental Radioactivity*, 111 (September), 83-99 [Link](#)

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American Journal of Nursing, 103(5), 41-50. [Link](#)

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Kumar, P. (1994). A review of triage and management of burns victims following a nuclear disaster. *Burns*, 20(5), 397-402. [Link](#)

Laurent, C. (1990). Disaster triage of massive casualties from thermonuclear detonation. *Journal of Emergency Nursing*, 16(4), 248-51.

(1985). Tincture of iodine keeps radiation away. (possible home remedy in event of nuclear plant mishap). *Science News*. Dec 7, 128 p360(1). [Link to article](#)

Miller, K. (1989). Effectiveness of skin absorption of tincture of I in blocking radioiodine from the human thyroid gland. *Health Physics*, 56(6), 911-4. [Link to article](#)

Schipper, D. (2005). Pills that protect you.(Cesium and Potassium iodide in radiography). *Men's Health*, 20(7), 138.

Splete, H. (2003). Handling a nuclear incident: potassium iodide. (Some Regional Distribution Plans in Place). *Internal Medicine News*, 36(8). p8(1).

Tagami, K., Uchida, S. (2011). Can we remove iodine-131 from tap water in Japan by boiling?. *Experimental testing in response to the Fukushima Daiichi Nuclear Power Plant accident Chemosphere*, 84(9), 1282-1284 [Link](#) (NO you cannot)

Udeani, J., Aguilera, P. (2002). Management of nuclear casualties. *Topics in Emergency Medicine*, 24(2), 40-6, 79-82. [Link](#) You might find this journal listed under Advanced Emergency Nursing Journal.

Find the "Management of Nuclear Casualties" article on <http://journals.lww.com> and click on the "Buy" button. Then you will have to register if you have never created an account. If you have an account, please login first. Once you are registered/logged in you should be prompted to enter credit card details. Once this is completed, you will then have access to the article. (Apologies to P. Aguilera for the previous typo omitting his name).

General Emergency Links

[SAS Survival Handbook](#) by John Wiseman

[American Red Cross](#)

[CDC](#)

[FEMA](#)

[Nuclear War Survival Skills 27.2 MB](#) ([alternate link](#) - this takes a while to download and is about 28 MB), also [available in website format](#).

[FEMA Nuclear War Survival](#)

[Planning Guidance for Response to a Nuclear Detonation](#) or [here](#)

[Medline](#)

[Ready.gov](#)

[Details - abstracts of medical articles and citations. These may be of interest to medical professionals.](#)

Radiation Burn Article Links

[Radiation combined injury: overview of NIAID research](#)

[Nuclear terrorism and the problem of burns](#)

[A review of triage and management of burns victims following a nuclear disaster](#)

[Development of a Combined Radiation and Burn Injury Model 2011](#)

[Therapeutic effect of topical application of curcumin in treatment of radiation burns in a mini-pig model](#)

[Advances in the management of localized radiation injuries](#)

[Wound healing after radiation therapy: Review of the literature](#)

[Successful Treatment of a Case of Extensive Radiation Burns With Multiple Organ Dysfunction Syndrome](#)

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[Exposure to an iridium-192 source in an industrial safety worker - \(this article documents the successful use of hyperbaric oxygen therapy for a radiation burn\)](#)

[Radiation injuries, vesicant burns, and mass casualties](#)

[Treatment of extensive acute radiation burn and its complications](#)

[Experimental estimation of application efficacy of wound coverings as a means of conservative therapy of local radiation burns formed at combined radiation injures](#)

[Experimental research on the management of combined radiation-burn injury in China](#)

[Medical countermeasures for radiation combined injury: radiation with burn, blast, trauma and/or sepsis. report of an NIAID Workshop](#)

[Development of a combined radiation and burn injury model](#)

[Meeting Report: Medical countermeasures for radiation combined injury: radiation with burn, blast, trauma and/or sepsis 2008](#)

[\(link back to above general radiation burn information\)](#)

Articles/Bibliography for Medical Radiation Emergency Training/Planning for medical and emergency professionals

[Clinical guidelines for responding to chemical, biological, radiological, nuclear and trauma/burn mass casualty incidents: Quick reference guides for emergency department staff \(Link to worldcat search\)](#)

[Improving hospital preparedness for radiological terrorism: perspectives from emergency department physicians and nurses](#)

[Medical response to a radiologic/nuclear event: Integrated plan from the Office of the Assistant Secretary for Preparedness and Response, Department of Health and Human Services](#)

[Nuclear terrorism: triage and medical management of radiation and combined-injury casualties](#)

[Manual for First Responders to a Radiological Emergency](#)

[Medical response to a major radiologic emergency: a primer for medical and public health practitioners Health Physics Considerations in Medical Radiation Emergencies \(alt link\)](#)

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