Nuclear Detonation Preparedness: Communicating in the Immediate Aftermath

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FEMA

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Introduction

This second edition of *Nuclear Detonation Preparedness: Communicating in the Immediate Aftermath* is a companion document to the third edition (2022) of *Planning Guidance for Response to a Nuclear Detonation*. Both publications expand upon previous guidance to cover a wider range of nuclear detonations than previous editions, including larger detonations and airbursts.

Federal, state, local, tribal, and territorial government and emergency response officials can use these guides to plan for and respond in the first 72 hours following a nuclear detonation in their jurisdiction. During this time radiation levels will be the highest. Confusion will be high, and the immediate local response will be essential in saving lives. Consistent messaging across all levels of government will be critical to establish, build, and maintain trust.

Risk and crisis communications and protective action messaging will be among the first emergency response actions taken, and the most lifesaving. Risk and crisis communication tactics should be integrated into response plans and state communications plans and strategies. In addition, the Emergency Support Function 15 Annex N includes background information about critical messaging for nuclear/radiological threats addressed in this document.

1. How to Use This Guide

The key messages are organized by topic, with a subset of social media messages, for quick reference. The online version of this document is designed so users can easily click on topic or key word links to jump to the relevant messaging section. Messages that overlap, repeat, or correspond between topics are referenced with links to the relevant section to avoid repetition. The key messages format is designed to provide source content for use across different channels including websites, press releases, press briefings, media interviews, social media, radio broadcasts, and responses to public inquiries.

The messages are designed to be adaptable and cover a range of scenarios and audiences, with a primary focus on those in the affected area. The guide acknowledges the quickly changing and uncertain nature of this type of emergency and addresses some anticipated public concerns.

2. Social Media

Drafts of messages ready for social media — X (Twitter), Facebook, Instagram, etc. — and associated images are included in each key message section. The format of the social media section labeled in Figure 1 below.

Figure 1. Social Media Message Layout

1. Section header label.
2. The message. Some messages are stand-alone and some are "threaded" messages, which is a way to make multiple connected posts on X (Twitter), in order to convey more information. These message threads can also be used on other social media as normal paragraphs.
3. Character count of the message and graphic resource recommendations. Character count is based on X (Twitter) restrictions. No message goes over 280 characters. A table of graphic resources is included below the social media messages and is labeled by letter starting with "A" in every section. Not all messages have graphic recommendations. For some messages there are no suitable graphics available, and other messages already have a graphic linked in the message. A graphic may not be recommended if the graphic was included earlier in a threaded group of messages. Users should use their best judgment when choosing graphics and should feel free to change the graphics linked in the message as well. The most suitable choice of graphic will depend on the message and social media platform.

IPAWS formatted messages and Appendix III can be used as part of the Integrated Public Alert & Warning System (IPAWS) during the immediate notification of a nuclear attack.

3. Appendices

Familiarizing yourself with the contents of the Appendices will help in the development of a comprehensive communication plan.

- Appendix I – Guiding principles and empathetic messaging
- Appendix II – Background information and messaging about basic radiation concepts
- Appendix III – Alerts, warnings and notifications to send via the Federal Emergency Management Agency's (FEMA) Integrated Public Alert and Warning System (IPAWS) for use throughout the incident. In addition, chapter 7 of the 2022 *Planning Guidance for Response to a Nuclear Detonation* covers information on alerts, warnings and notifications, including IPAWS.
- Appendix IV – Instructions for public information officers (PIOs) on how to sign up for and use RadResponder.
- Appendix V – List of anticipated questions that cannot have pre-scripted answers. Responders should aim to find answers to those questions quickly after the detonation.

Key Messages

1. Emergency Notifications

This section contains key messages that can be adapted for any type of communication, and, unlike other sections, it contains Integrated Public Alert and Warning System (IPAWS) messages in blue boxes that can be used for emergency alerts. Normally, all IPAWS messages are in Appendix III, but since emergency notifications are extremely urgent, the related IPAWS messages have been included for convenience.

For a nuclear detonation, there are three potential scenarios or time markers necessitating emergency public notification:

- *Advance notice of a nuclear attack*
- *Immediately following a blast that is not confirmed to be a nuclear detonation*
- *Immediately following a confirmed nuclear detonation*

The Nuclear/Radiological Incident Annex (NRIA) encourages federal, state, local, Tribal, and territorial (SLTT) officials to immediately inform the public to "Get Inside, Stay Inside, Stay Tuned" and to instruct the public to get inside for at least 12-24 hours following a nuclear detonation.

All messages can be modified as long as they contain the following critical elements for emergency alerts in this order: [source – e.g., local police, FEMA, local fire department, etc.][hazard][location][protective action] [expiration time]. Consider eliminating the source after the first message if subsequent messages are from the same source. There are benefits to always including the source, but only if you can fit in the limited number of characters allowed. Learn more about the components of a complete alert and warning message in the IPAWS section in Appendix III.

IPAWS messages (in blue boxes) are short, immediate warning messages, and can be used for initial warning. The rest of the key messages in bullets contain extra information that can be used as needed.

***About IPAWS Messages:** The Integrated Public Alert and Warning System (IPAWS) is the Federal Emergency Management Agency's (FEMA's) national system for authorities to send emergency alerts and information to the public through mobile phones, radio, television, and other private-sector communications systems. Wireless Emergency Alerts (WEA) sent to cell phones via IPAWS is recognized as the most effective way to rapidly warn people of an emergency incident.*

Creation of short 90-character messages is required to ensure effective use of all the public alerting pathways available via the IPAWS. Although most cellular networks and phones now support reception and display of WEA messages up to 360 characters long, several communications systems supporting distribution of alerts from IPAWS continue to use the 90-character format.

In this section, IPAWS messages are the messages inside the blue boxes. *Appendix III has additional IPAWS messages for communicating protective actions throughout a nuclear detonation response as well as more background information about IPAWS and how to use it.*

1.1. Advance Notice of a Nuclear Attack

Note: If the attack is suspected but not confirmed as nuclear, messages may be modified by not using the word "(nuclear)" in parentheses.

IPAWS Messages: *For more information about using IPAWS messages, see Appendix III.*

- **90-character WEA message:** [SOURCExxxxxxxxxx] warns (NUCLEAR) attack in [LOCATIONxxxxxxxxxx]. Get inside, stay inside NOW – (88 characters)
- **360-Character WEA message:** [SOURCExxxxxxxxxx] warns (NUCLEAR) attack is imminent in [LOCATIONxxxxxxxxxx]. Get inside a basement or central room of a sturdy building NOW and stay away from windows and doors. Stay inside. Listen for more info. Do not leave unless officials provide other instructions or your shelter is threatened by fire or collapse. – (320 characters)

- [SOURCE] warns an incoming (nuclear) attack is expected near [LOCATION] in [TIME FRAME]. Get inside the nearest sturdy building. Stay away from windows. More walls provide more protection. Stay inside and stay tuned to official sources for important information.

- People in [LOCATION]: (NUCLEAR) ATTACK ALERT. A(n) (suspected nuclear) attack is expected in [TIME FRAME]. Get inside, stay inside, stay tuned for info.

    - Get inside a sturdy building, stay inside and stay tuned for info. Duck down if there is a bright flash. This can protect you from the blast or flying debris.

    - People driving in [LOCATION], stop driving. Go inside the nearest sturdy building. If there are no buildings nearby, pull off the road, under an overpass or near an embankment as soon as you can. Do not keep driving. It will be difficult to predict the direction of the blast or outrun any radiation.

1.2. Immediately After Detonation: Suspected but Not Confirmed if Nuclear

- [SOURCE] warns there has been a suspected nuclear detonation in [LOCATION]. If you are in [AREA]: get inside, stay inside, and stay tuned for updates. These are the most important actions you can take right now. Emergency officials are investigating the situation and will provide updates.
    - If the building you are in is on fire or at risk of collapse, leave it and seek different shelter.
    - People driving a car in [LOCATION], stop driving and go inside a sturdy building or the nearest underground area or overpass. A car will not protect you from radiation exposure. Stay tuned for more info.

1.3. Immediately After Confirmed Nuclear Detonation

Note: Do not hesitate to use the word nuclear.

IPAWS Messages: *For more information about using IPAWS messages, see Appendix III.*

- **90-character WEA message:** [SOURCExxxxxxxxxx] warns nuclear attack in [LOCATIONxxxxxxxxxx]. Get inside, stay inside NOW – (88 characters)
- **360-character WEA message:** [SOURCExxxxxxxxxx] warns a nuclear detonation has occurred. People in [LOCATIONxxxxxxxxxx] - get inside, stay inside, stay tuned for more information. Prepare to stay inside for at least 24 hours unless officials provide other instructions, or your building is threatened by fire or collapse. Follow instructions from officials – this can save your life. – (349 characters)

- [SOURCE] has confirmed there has been a nuclear detonation in [LOCATION]. Get inside a sturdy building. More walls provide more protection. Stay inside and stay tuned. These are the most important actions you can take right now. Check [@HANDLE] for regular updates.
    - If the building you are in is on fire or at risk of collapse, leave it and seek different shelter.
    - People driving in [LOCATION], stop driving and go inside a sturdy building. A car will not protect you from radiation exposure, and the direction of radioactive fallout is difficult to predict and outrun. Stay tuned for more info.

2. Immediate Protective Actions

These messages support the initial alert messaging for people in the affected area to get inside, stay inside, and stay tuned. Messages in this section provide more information and details on safely getting inside and sheltering in place.

2.1. Get Inside

- If you are outside or in an unstable structure, get inside the nearest sturdy building.
- The safest place to be is in the basement or innermost room of a structurally sound building, because concrete and soil protect you from radiation.
    - Choose a room with no windows, if possible.
    - More walls provide more protection.
- Going inside protects you from radioactive fallout, which is dirt- or sand-like particles that are highly radioactive and very dangerous in the first 24 hours after a nuclear detonation.
    - Weather conditions, such as wind and rain, affect the spread of radioactive material.
    - The most dangerous radioactive materials land only tens of miles from the detonation site. The heavy particles can't stay in the air for very long. However, smaller radioactive particles can travel long distances.

2.2. Stay Inside

- Once you have taken shelter in the nearest underground area or center of a sturdy building, plan to stay there for 12-24 hours unless threatened by a more immediate life safety hazard, such as fire or building collapse.
    - Radiation levels decrease with time. Responders will monitor radiation levels to know when it is safe to evacuate or go outside. You might need to stay inside for at least 12-24 hours, possibly more depending on your location relative to the detonation site.
- If the building you are in is on fire or at risk of collapse, leave it and seek different shelter.
    - Nuclear detonations produce an enormous amount of heat, sometimes called a thermal pulse. This can cause buildings and other materials to catch on fire.
    - If you must move to a safer shelter, minimize the time spent outdoors and consider putting on a mask and an outer layer of clothing that you can take off to aid in decontamination at your new shelter.
- Be alert for signs of fire. If you think a fire is coming toward you, leave your current location and move to a different sturdy building to stay inside.

2.2.1. HELPING OTHERS SHELTER

- People in [LOCATION] who were outside during the blast need to get inside immediately.
    - Some people currently in [LOCATION] may not have immediate access to a place to shelter.

- Letting people into your building can save lives. Those entering the location can easily self-decontaminate by removing shoes and outer clothing and/or brushing or wiping off fallout particles immediately after they enter. See *3.3. How to Self-Decontaminate* and *3.3.1. How to Decontaminate if You Can't Shower or Change Clothes*.

2.2.2. SEPARATION FROM LOVED ONES

- Stay inside to protect yourself and your loved ones.
  - Children and adults in schools, daycares, hospitals, and care facilities are safest staying inside a sturdy building to shelter.
  - Schools and other facilities have emergency plans to protect your loved ones.
  - They will be told to stay inside until emergency responders know that it is safe to leave the building they're sheltering in.
- Do not try to reunite with loved ones right now. Going outside could expose you and your loved ones to harmful levels of radiation and hinder response efforts.
- If your loved ones are in the area of [LOCATION], you can help them by doing the following:
  - Text, don't call. Many people need help right now, and overloading phone networks and lines can put people in more danger.
  - Make sure loved ones have up-to-date information from reliable sources.
    - Rumors and misinformation are extremely dangerous and spread fast, especially on the internet and social media. There will be information spread from unofficial sources that may provide outdated or intentionally false information.
  - If you have loved ones who are having trouble getting information, send them links from reliable sources or text them the official instructions they should be following. [INSERT APPRORIATE LINK FOR PROTECTIVE ACTION INFO]
  - Check [WEBSITE] for more information about how to help.
- The American Red Cross has a website for people within a disaster area to let their friends and loved ones outside the affected region know of their well-being: https://www.redcross.org/get-help/disaster-relief-and-recovery-services/contact-and-locate-loved-ones.html
- Only share information from official sources. There will be many unofficial sources attempting to provide you information that could be out of date or false.

2.3. Social Media Messages

See Appendix III for IPAWS messages about immediate protective actions. The following standalone messages are ready for social media use. Use and edit as you see fit. See the Introduction for more instructions on using social media messages.

2.1. GET INSIDE	▪ A nuclear attack has occurred. If you are in [AREA], get inside a sturdy building and stay inside. Do NOT try to leave the area. If you are driving in [AREA], stop driving and get inside. More walls give more protection from radiation. Stay tuned for updates. (≈260 chr; Graphic: A, B, C, E, F, H)
2.3. STAY INSIDE	▪ Nuclear detonation in [LOCATION]. People in [AREA], get inside a sturdy building. Be prepared to stay inside for at least 24 hours, due to dangerous radiation levels outside. Don't go outside unless instructed to or your shelter is threatened by fire or collapse. (≈265 chr; Graphic: A,G,I)
2.2.1. HELPING OTHERS SHELTER	▪ Nuclear attack in [LOCATION]. People in [AREA] should get inside and stay inside NOW. You can safely let other people into your building if they self-decontaminate after entry by brushing off dirt/sand from clothes or even better, removing shoes and outer layer of clothing. (≈276 chr; Graphic: ---)
2.2.2. SEPARATION FROM LOVED ONES	▪ Nuclear attack in [LOCATION]. People in [AREA], the safest place to be is inside a sturdy building. Those in schools, hospitals and other facilities will be told to stay inside. Do not try to reunite with loved ones until officials say it's safe. More info to come. (≈265 chr; Graphic: ---)

You can thread messages on X (Twitter) to cover more information than standalone tweets. Combine these messages for platforms that do not have a character limit, such as Facebook and Instagram. See threaded messages below.

Message 1 2.1. GET INSIDE	▪ A [SUSPECTED] nuclear attack has occurred. People in [LOCATION], get inside the nearest sturdy building. If you can, go to a basement or a central room without windows. Stay inside and stay tuned for official instructions. Check [@HANDLE] for updates. (≈240 chr; Graphic: A,B,C,E,F,H)

Message 2 & 3 2.2. STAY INSIDE	▪ Staying inside protects you from radioactive fallout outside. Be prepared to stay inside for 24 hours, possibly longer. Responders will measure radiation levels to know when it is safe to go outside. Following official instructions is the best way to protect you and your family. (279 chr; Graphic: A,G,I)
	▪ Only go outside if your shelter is on fire or collapsing and you need to move to a safer shelter. Minimize time outside. Put on an outer layer of clothing and a mask. Self-decontaminate by removing these and placing them in a bag away from others once inside your new shelter. (278 chr; Graphic: ---)
Message 4 2.2.2. SEPARATION FROM LOVED ONES	▪ Do not try to reunite with loved ones right now. Going outside could expose you to radiation and slow down responders. Text each other. Calling will overload phone networks. If you need help with missing family, see [OFFICIAL LINK OR https://www.redcross.org/get-help/disaster-relief-and-recovery-services/contact-and-locate-loved-ones.html] (241 chr; Graphic: ---)
Message 5 & 6 3.3. HOW TO SELF-DECONTAMINATE	▪ Self-decontamination should be done quickly once inside. This process of gently removing the potentially radiologically contaminated debris from your clothing and body can greatly reduce your exposure to radiation. Follow the steps outlined here: https://www.cdc.gov/radiation-emergencies/infographic/decontamination.html (270 chr; Graphic: ---)
	▪ First, remove your outer layer of clothing if you can. If not, gently brush off any dirt/particles away from people and pets. If available, shower or wipe yourself off at a sink. Put on clean clothes if you can. Place removed clothes in a bag away from people and pets. (270 chr; Graphic: ---)
Message 7 2.2.1. HELPING OTHERS SHELTER	▪ You can safely let other people into your building without additional risk of radiation contamination by asking them to self-decontaminate after coming inside by brushing off dirt/sand from their clothes or removing their shoes and outer layer of clothing, if possible. (271 chr; Graphic: ---)
Message 8 3.3. HOW TO SELF-DECONTAMINATE & 7. SEEKING MEDICAL CARE	▪ If you're wounded, apply pressure to stop any bleeding then decontaminate the area around the wound and wrap physical injuries or lightly wrap burn injuries. Get a health care professional to decontaminate the wound when you're able to see one. (246 chr; Graphic: ---)

Message 9 7. SEEKING MEDICAL CARE	▪ If someone is severely injured, call 911. If calling doesn't work, check to see if you can go to a [hospital/fire station/EMS station/police station or emergency medical triage center if one is established]. People going outside should put on an outer layer of clothing and a mask or cloth to cover their nose and mouth. Minimize time outside. (≈270 chr; Graphic: ---)

2.4. Graphic Resources

These are available graphic resources. You can choose which one to use. Suggestions for social media message and graphic pairing are made above.

A: DHS Ready.gov

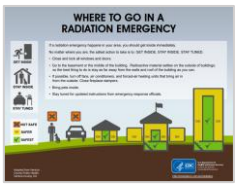
Webpage about protecting yourself in the event of a nuclear explosion

B: CDC CDC.gov

Webpage about what to do during a radiological emergency.

C: CDC CDC.gov

Webpage about where to go during a radiation emergency + a few translations



D: FEMA PDF

PDF about how to be prepared during a nuclear explosion

E: CDC Video about protecting yourself during a radiation emergency + many more videos.

F: FEMA Video about how to protect yourself after a nuclear explosion
(+ Spanish)

G: CDC Video about sheltering in place

H: CDC Video about immediate protective actions (+ sign language version)

I: FEMA PDF (pg 6) about how to shelter in place for a nuclear detonation

J: CDC CDC.gov Webpage about Nuclear weapons.

3. Decontamination

Early on and closer to the detonation, fallout is likely to be larger, heavier, dirt- or sand-like particles. People who were outside or might have been contaminated with radioactive particles can significantly reduce their risk of radiation exposure by removing the radioactive contamination (self-decontaminating).

With distance and time from the detonation, fallout will likely be smaller and more dust-like and will probably reach downwind areas a day or more later. This fallout can travel thousands of miles with the weather, but it is much less dangerous than the larger fallout mentioned above. Self-decontamination is still recommended. *See 18. Messaging Outside of the Affected Area*

Experts will advise on the danger of fallout early after the detonation, and it will vary depending on the type of detonation, the weather, and your location. The messaging in this section can be used in any type of nuclear detonation incident while you await more specific characterizations about fallout level. There may be variations on how to characterize the level of danger fallout poses.

3.1. Contamination from Fallout

- Fallout is the dirt- or sand-like radioactive particles that get dispersed by a nuclear detonation and then begin to rain down after approximately 10 minutes.
    - The primary hazard from fallout is external exposure to the radiation coming from the fallout particles that have settled on the ground or other surfaces.
- Like dirt or fine sand, fallout settles on surfaces, including people, pets, buildings, roads, and crops. When radioactive particles are on or in a person or object, that person or object is contaminated.
- A contaminated person or object is exposed to radiation from the fallout on or inside their body.
    - Decontaminate yourself as soon as possible to reduce your exposure to radiation that has settled on your body. *See 10.1. Contamination and Radiation Exposure* and *3.3 How to Self-Decontaminate*.
- A person can be contaminated by fallout in two ways: 1) external contamination, when radioactive particles are on the surface of the body or clothes, and 2) internal contamination, when people swallow or breathe in radioactive particles. Due to its large size and rapid decay, fallout becomes less of an immediate threat after the first few days.
    - There's a low chance that an externally contaminated person can spread radioactive particles to people or surfaces they touch or contact.

- The external contamination in the form of dirt- or sand-like fallout particles. You can remove it in a way that reduces its spread and keep the risk from radiation low. *See 3. Decontamination*

- External contamination from fallout is a far more immediate concern for your health than internal contamination. Dangerous radioactive particles are typically too large to be inhaled. *See 11.2. Deemphasize Medical Treatments for Internal Contamination*

3.2. About Decontamination

- Decontamination means removing radioactive materials from a person, object, or place.
- Decontamination can reduce your exposure from harmful radioactive materials and prevent future health effects.
- As soon as you get inside, follow instructions from officials to self-decontaminate as best as you can with what you have.
- Gently remove as much radioactive material as soon as you can—health risks from radiation exposure depend on the intensity of radiation and length of time you are exposed.
- Even if local officials have advised to not drink the tap water, you can use tap water to gently wash yourself or wipe yourself off with a damp cloth for decontamination.
    - Any radioactive material that gets into surface water or ground water sources will be reduced to very low levels. The water will be safe for washing skin, hair, and clothing. It's also safe for cleaning pets. Do not drink the water, though, unless advised it's safe.
- Self-decontamination measures can be taken as a safety precaution if you have any concerns about contamination.

3.3. How to Self-Decontaminate

- As soon as you are inside a building, follow these steps to safely remove radioactive material that might be on your body, hair, or clothes (self-decontaminate):

    1. Remove your outer layer of clothing.
        - Removing your outer layer of clothing can remove up to 90% of radioactive material. Try not to spread radioactive particles that could shake loose when removing your clothes.
        - Place the removed clothing in a plastic bag and place the bag away from people and pets.
    2. If you have access to shower facilities, wash yourself off.

- Take a shower with soap and water to help remove radioactive material. Wash gently; do not scald, scrub, or scratch your skin. Damaging your skin could allow contamination to get inside your body. See Decontamination Fact Sheet

  - If you are injured, apply pressure to stop any bleeding, then decontaminate the area around the wound. Wrap the physical injury. Burns should be lightly wrapped. Get a healthcare professional to decontaminate your wound once you have access to one. For more information on injuries, see *8. Blast Injuries* and *9. Thermal Injuries and Burns*.

- Wash your hair with shampoo or soap and water.

- Put any towels, cloths, or wipes you used in a bag and place the bag away from people and pets.

3. Change clothes
   - Use clothing stored in a closet, drawer, or other covered area, if possible. It is much less likely to have any radioactive materials on it.

3.3.1. HOW TO DECONTAMINATE IF YOU CAN'T SHOWER OR CHANGE CLOTHES

- As soon as you are inside a building, follow these steps to safely remove radioactive material that might be on your body, hair, or clothes (self-decontaminate).
- Although the best way to self-decontaminate is to shower and completely change your clothes, you can still remove most of the radioactive material even without water or a change of clothes.
  - If possible, remove shoes and outer layer of clothing and wipe off exposed skin. Place the potentially contaminated clothing in a bag away from people and pets.
  - If you cannot take off your clothes or you are only wearing one layer of clothing, brush or wipe off your clothing as best as you can away from other people or pets. Cover your nose and mouth with a cloth or mask if you can, so you don't swallow any hazardous particles you shake loose.
  - If you cannot shower, use a sink or faucet and soap to wash any uncovered skin, especially your hands and face. If you cannot get to a sink or faucet, use a damp cloth or towel or a wet wipe.
  - Gently blow your nose, wipe your eyelids, eyelashes, and ears with a clean wet cloth.
  - Place any potentially contaminated towels, clothes, or wipes you used in a plastic bag, away from people and pets.

3.3.2. HELPING OTHERS DECONTAMINATE

- After decontaminating yourself, help others who might not be able to self-decontaminate on their own, such as babies and children, people with disabilities, people with access or functional needs, older adults, or pets.
    - If available, put on something to cover your clothing.
    - Wear waterproof gloves and a mask (or other material to cover your nose and mouth) if you can.
    - Cover cuts and scrapes (yours and those of anyone you are helping) when washing to keep radioactive material out of the wound.
    - After helping others, decontaminate yourself again to make sure no radioactive materials are on you from the person or animals you helped.

3.3.3. PETS AND SERVICE ANIMALS

- Radiation affects pets and animals the same way it affects people.
- Contaminated animals, if not properly decontaminated, can contaminate people or objects.
- If your pet or service animal was outside in the affected area, take the following steps to remove radioactive material on your pet:
    - Wash your pet thoroughly with shampoo and water and rinse completely. If you cannot wash your pet, brush, or wipe off your pet with a wet cloth or a paper towel.
    - Wear waterproof gloves and, if possible, a mask to protect yourself from contamination and radiation exposure. Some pets tend to shake themselves off, so be careful of contamination.
    - Cover cuts and open wounds on you and your pet when washing your pet to avoid getting radioactive material in the wound.
    - After helping others, decontaminate yourself again to make sure no radioactive materials are on you from the animal you helped.

3.3.4. ESSENTIAL BELONGINGS AND ASSISTIVE MEDICAL DEVICES

- After you are inside and have self-decontaminated, you can decontaminate other essential belongings, such as wallets, jewelry, or assistive medical devices, such as wheelchairs, prosthetic limbs, or hearing aids.
- Radioactive material can get on surfaces of objects, just like dirt or sand can. Clean essential belongings and assistive medical devices the same way you would remove dirt or sand from

them. Use a damp cloth or towel or wet wipe to wipe down surfaces and wear waterproof gloves if they are available.

- Do your best to decontaminate your essential belongings. There may be some objects that can't be completely decontaminated.
- If an item cannot be decontaminated and you don't immediately need it, put it in a bag and store it away from people and pets. Wait for further instructions from officials.
- Put any used cloths, towels, or wipes in a plastic bag and place the bag away from people and pets.

3.3.5. IMMEDIATE ACTIONS TO REDUCE CONTAMINATION IN YOUR HOME

The likelihood of drawing in radioactive fallout into your home is extremely small after the passage of the fallout cloud. The passage of the fallout will likely happen over a short period of time. Closing off ventilation after the passage of the fallout cloud provides little to no health benefit. Heating and cooling should take priority if there are extreme temperatures.

- Radioactive fallout particles might be raining down in your area.
- Limit your exposure to radiation by closing windows and doors if you can, so fallout does not get inside where you're staying. If you are in a sturdy building with some broken windows, there is no need to relocate. Move toward the center of the building, away from the exposed areas:
    - You should consider turning off anything that brings air in from the outside. If it's an option, turn off "ventilation mode" or "fresh air intake" and switch air to recirculate if possible. If you aren't sure if your HVAC system has this option, then turn it off if safe to do so.
    - If you are experiencing extreme temperatures or weather conditions, listen to emergency officials for guidance on heating and air conditioning. The health risk from turning off HVAC systems might be greater than the risk of radioactive contamination.
    - Make sure fireplace dampers are closed.
- Emergency response officials will provide instructions to take additional steps if needed.

3.4. Social Media Messages

See Appendix III for IPAWS messages about immediate protective actions. The following messages are ready for social media use. Use and edit as you see fit. See the Introduction for more instructions on using social media messages.

3.1. CONTAMINATION FROM FALLOUT	▪ Staying inside protects you from radioactive fallout, which is dirt/sand-sized particles that get released by a nuclear detonation. If you were outside at the time of the detonation, you may be externally contaminated by fallout. See decontamination steps https://www.cdc.gov/radiation-emergencies/infographic/decontamination.html (280 chr; Graphic: ----)
3.2. ABOUT DECONTAMINATION	▪ Self-decontaminate immediately after you get inside to clean off any dangerous radioactive particles that might have landed on you from the detonation. The longer you're exposed to these particles, the greater the health risk. See steps for decontamination: https://www.cdc.gov/radiation-emergencies/infographic/decontamination.html (280 chr; Graphic: ----)
3.3. HOW TO SELF-DECONTAMINATE	▪ Once inside, clean off radioactive fallout particles: 1) Remove outer layer of clothing and put them in a bag away from people, 2) Shower or wipe yourself off. Tap water is OK, 3) Put on clean clothes, 4) Help others. See more detailed instructions: https://www.cdc.gov/radiation-emergencies/prevention/self-decontaminate.html (273 chr; Graphic: ----)
3.3.1. HOW TO DECONTAMINATE IF YOU CAN'T SHOWER OR CHANGE CLOTHES	▪ Self-decontaminate immediately once inside to clean off radioactive fallout particles. This usually involves showering/changing clothes. If not available, you can still remove most fallout by taking off outer clothes. If you can't do this, gently brush off any dirt/particles. (273 chr; Graphic: A,B,C,D,E)
3.3.2. HELPING OTHERS DECONTAMINATE	▪ The nuclear detonation released dirt/salt-like radioactive fallout. Clean yourself off immediately once you're inside to reduce your exposure to radiation. Help others who need help cleaning, then clean yourself again. See more detailed instructions: https://www.cdc.gov/radiation-emergencies/prevention/self-decontaminate.html (273 chr; Graphic: ----)
3.3.3. PETS AND SERVICE ANIMALS & 3.3.4 ESSENTIAL BELONGINGS AND ASSISTIVE MEDICAL DEVICES	▪ The nuclear detonation released fallout (radioactive dirt/sand-like particles). Get inside quickly and clean yourself and your pets. Wipe down belongings you brought inside. Things that aren't cleaned off can spread fallout to others. See instructions: https://www.cdc.gov/radiation-emergencies/infographic/decontamination.html (275 chr; Graphic: ----)

3.3.5. IMMEDIATE ACTIONS TO REDUCE CONTAMINATION IN YOUR HOME	▪ Radioactive fallout particles are raining down in [AREA]. Close the windows and doors. If you can't, that's OK–move to the center of the building. Switch off anything bringing in outside air, like fans & air conditioners. Close fireplace dampers. Stay tuned for updates. (≈270 chr; Graphic: B,C,D,E)

You can thread messages on X (Twitter) to cover more information than standalone tweets. Combine these messages for platforms that do not have a character limit, such as Facebook and Instagram. See threaded messages below.

Message 1 3.1. CONTAMINATION FROM FALLOUT	▪ Staying inside protects you from radioactive fallout, which is dirt/sand-sized particles that get released by a nuclear detonation. If you were outside at the time of the detonation, you may be externally contaminated by fallout. See steps for cleaning: https://www.cdc.gov/radiation-emergencies/prevention/self-decontaminate.html (278 chr; Graphic: ---)
Message 2 3.2. ABOUT DECONTAMINATION	▪ Cleaning off radioactive fallout is called decontamination. This should be done immediately once you're inside. The longer you're exposed, the greater the health risk. If you've been indoors the whole time, you can decontaminate as an extra safety measure. (256 chr; Graphic: C,E)
Message 3 3.3. HOW TO SELF-DECONTAMINATE	▪ Steps for self-decontamination: 1) Remove outer layer of clothing and put them in a bag away from people & pets. 2) Shower or wipe yourself off. Tap water is OK for decontamination. 3) Put on clean clothes. 4) Help others. You can watch a video: https://youtu.be/X8988d1zgDk (276 chr; Graphic: ---)
Message 4 3.3.1 HOW TO DECONTAMINATE IF YOU CAN'T SHOWER OR CHANGE CLOTHES	▪ If you can't shower or wipe yourself off, you can remove most fallout by removing shoes and outer clothes. Place contaminated items in a bag away from people & pets. If you can't remove clothes, gently brush off particles away from people. Blow your nose, wipe eyelashes & ears. (278 chr; Graphic: C,E)
Message 5 3.3.2 HELPING OTHERS DECONTAMINATE	▪ After decontaminating yourself, help others who might need help. If available, put on gloves, and a mask. Cover cuts and scrapes on yourself and those you are helping. After helping others, decontaminate yourself again to make sure no fallout particles are on you. (264 chr; Graphic: C,E)

Message 6 3.3. HOW TO SELF-DECONTAMINATE & 7. SEEKING MEDICAL CARE	▪ If you're wounded, apply pressure to stop any bleeding then decontaminate the area around the wound and wrap physical injuries or lightly wrap burn injuries. Get a health care professional to decontaminate the wound when you're able to see one. (246 chr; Graphic: ---)
Message 7 3.3.3. PETS AND SERVICE ANIMALS & 3.3.4 ESSENTIAL BELONGINGS AND ASSISTIVE MEDICAL DEVICES	▪ Pets that were outside and essential items that you brought inside also need to get decontaminated quickly so they don't spread fallout to others. Wash your pet with water and shampoo or wipe with wet cloth. Wipe items. Decontaminate yourself again afterwards. (260 chr; Graphic: D)
Message 8 3.3.5. IMMEDIATE ACTIONS TO REDUCE CONTAMINATION IN YOUR HOME	▪ Close windows and doors to protect your home from fallout. If you can't that's OK – move to the center of the building. If it's not too hot, switch off anything bringing in outside air, like fans & air conditioners. Close fireplace dampers. Stay tuned for more instructions. (≈276 chr; Graphic: ---)

3.5. Graphic Resources

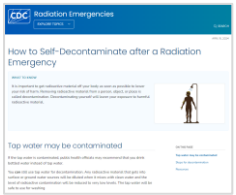
These are available graphic resources. You can choose which one to use. Suggestions for social media message and graphic pairing are made above.

A: DHS Ready.gov

Webpage about protecting yourself in the event of a nuclear explosion

B: CDC CDC.gov

Webpage about detailed self-decontamination steps



C: CDC CDC.gov

Webpage about How to Self-Decontaminate after a Radiation Emergency (+translations)

D: CDC CDC.gov

Webpage about decontaminating your pets

E: CDC Video about how to self decontaminate (+ sign language version)

4. Food, Water, and Medicine Safety

Food, bottled drinks, and medications inside an intact home or shelter are safe from contamination. If the blast breaks windows, doors, or damages walls, it is possible that radioactive material can get inside the home and contaminate any unpackaged or uncovered foods or drinks. Items in cabinets, refrigerators, freezers, and packaged foods, drinks, and medications are still safe to use after wiping the surfaces of the packaging. Food or water outdoors, such as garden produce and well water, should not be consumed, even when it is safe to go outside. General food and water safety recommendations should be followed when there are health risks, such as power outages and damaged water systems.

- Take precautions to avoid consuming food or water than may have become contaminated with radioactive fallout.
- Food, bottled water, drinks, and medicine already inside your home or building are most likely safe from contamination.
- If the blast broke through windows, walls, or ceilings in your home or shelter:
    - Unpackaged food, drinks, or medications might be contaminated.
    - You can consume food, drinks, and medications that have been in sealed packaging or bottles. Wipe the outer surfaces of packaging and bottles with a wet cloth or towel and wash your hands afterwards to remove any contamination.
    - Place any potentially contaminated towels or wipes you used in a bag, away from people and pets.
    - Food, drinks, or medicines in closed cabinets, drawers, refrigerators, or freezers are safe from contamination.
- Look for information from your health or water department to find out if drinking water from the tap is safe and follow any water advisory guidance.
    - Water that has radioactive materials in it will not be made safe to drink by boiling it or disinfecting it. You can drink tap water if local officials say it's safe to drink. If they haven't confirmed if tap water is safe to drink, you can still use it for decontamination.
- If you were told to stay inside but do not have food or drinks, remain inside for as long as you can until you receive additional instructions from officials. When it is safe, emergency response officials will tell you how to get the supplies you need.
- If you have an infant, continue to feed them. *See 13.2. Infant Feeding Safety*.
- If you or a loved one do not have access to a life-sustaining medication, call 911 or your local hospital.

- If you are unable to complete a phone call and the situation becomes life-threatening, go to the nearest [depending on what's available in your jurisdiction: hospital/fire station/EMS station/police station or emergency medical triage center if one is established], located at [LOCATIONS]. Before you leave your shelter, put on an additional outer layer of clothing and, if you can, cover your nose and mouth with a mask or cloth. When you get help inside an emergency facility, remove the outer layer of clothing to remove any potential contamination.

4.1. Food Safety Practices

- If you lose power, try to keep the refrigerator and freezer doors closed as much as possible.
  - If you lose power for four hours or more, anything perishable (including meat, poultry, fish, eggs, and leftovers) might have gone bad.
  - Throw out any food with an unusual odor, color, or texture. Do not taste food to determine if it is safe to eat. When in doubt, throw it out.
  - Freezers can usually keep food safe for 24-48 hours. If perishable foods in your freezer have thawed, they might not be safe to eat.
  - If you have an appliance thermometer in your freezer, check to see if it is still at 40 °F or below.
  - You can safely refreeze or cook thawed frozen food that still contains ice crystals or is at 40 °F or below.

4.2. Pet Food Safety

- Just like people's food, pet food kept inside or packaged will be protected from contamination and should be safe for animals to eat.

4.3. Medication Safety

- Medications already inside your home or shelter are safe from contamination and can be taken.
- If you were outside during the detonation and had medication with you (such as in your pocket or a handbag) in its packaging or bottle, the medication is still safe to take.
  - If you are concerned that there could be radioactive material on the outer packaging or bottle, you can wipe down the surface with a damp towel or cloth. Wash your hands afterward if you can.
- If your life-sustaining medication was not in its packaging or bottle during the detonation, you should still take it as directed. The risk from not taking critical life-sustaining medication is likely greater than the potential risk of swallowing small amounts of radioactive contamination.

4.4. Water Safety

- You can still use tap or well water for washing and decontamination. It is very important to self-decontaminate as soon as possible.
    - Even if officials tell you not to drink the water, the levels of radioactive particles in the water supply are likely to be very low, so it is safe for washing skin, hair, and clothing.
    - Tap water is also safe for cleaning outside of food and medicine packages.

4.4.1. DRINKING WATER

Note: Use or adapt messages in this section as they apply to your situation and response activities.

Before Water Test Results Are Available

- Officials are testing local public water sources to see if it is safe to drink. Until drinking water test results come in, only bottled water/drinks are certain to be free from harmful levels of radioactive contamination.
    - Stay hydrated. While drinking bottled beverages is the only way to completely avoid radioactive contamination, you should drink what is available as the risk of dehydration is far greater than the potential risk of swallowing small amounts of radioactive contamination.
    - Sealed packages, bottles, or cans protect drinks from radioactive contamination. Drinks in refrigerators or freezers are also protected from contamination.
- If possible, use bottled water for mixing infant formula if ready-to-use formula is not available. *See 13.2. Infant Feeding Safety*
- If needed, use water from a toilet tank (NOT a toilet bowl) or from a hot water heater tank, as these water sources are protected from contamination and should be safe to drink.
- Boiling water does not remove radioactive contamination. Water filters and purifiers might not remove radioactive contamination.

After Water Testing is Completed

If results indicate water is safe:

- Officials completed testing the local public water supply and determined it is safe to drink water from your tap.

If results indicate unsafe levels of radioactive contamination for drinking water:

- Do not drink tap water at this time. Officials completed testing the local public water supply and determined that tap water currently has levels of radioactive contamination that make it unsafe to drink.
    - Continue to drink bottled water or drinks in sealed packages. If needed, you can use water from a toilet tank (NOT a toilet bowl) or from a hot water heater storage tank.
    - If possible, use bottled water for mixing infant formula if ready-to-use formula is not available. *See 13.2. Infant Feeding Safety*
    - Boiling water does not remove radioactive contamination. Water filters and purifiers might not remove radioactive contamination.
    - Radiation levels decrease over time through natural processes. Officials will continue to monitor radiation levels in the water. They will let people know when levels have decreased enough that it is safe to drink tap water. Continue to listen for updates and instructions from officials.
    - If you or your family or pet has consumed water that may be contaminated and you have concerns, contact your doctor or public health officials.

If results indicate water is not contaminated with unsafe levels of radioactive contamination but has other contaminants:

- Officials completed testing the water supply and issued a boil water advisory due to the presence of non-radioactive contaminants. Boil tap water before drinking or continue to drink only bottled water or water and drinks in sealed containers.
    - The water supply does not contain unsafe levels of radioactive materials.
    - The detonation damaged water management systems that normally remove harmful hazards such as bacteria and parasites from drinking water. Boiling water kills germs and makes it safe to drink.
    - You can still use tap water for decontamination. Self-decontaminate as soon as possible to protect yourself from dangerous radiation exposure.

4.4.2. DEHYDRATION

Note: Use when applicable for situations where public guidance has been issued to avoid drinking from public water sources during extreme heat.

- High temperatures increase the risk for dehydration. Dehydration can have serious health consequences and can be deadly.
- Anyone showing signs of dehydration should hydrate immediately.

- Signs of dehydration include sunken eyes, dizziness, headaches, and extreme exhaustion. When a person is dehydrated, if you pinch their skin and release, it will hold in the pinched position longer than normal before flattening back out.
- Dehydration is more dangerous than drinking water with possible radioactive contamination.
- If you do not have access to bottled drinks, drink tap water, water stored in a hot water heater storage tank, or a toilet water tank (NOT a toilet bowl).
    - The risk of drinking radioactively contaminated tap water is very low because any radioactive material that gets into surface water or ground water sources will be reduced to very low levels. The risk of dehydration is higher than the risk of drinking radioactive contamination.
    - Follow boil water advisories. Boiling water removes bacteria and parasites. Boiling will not remove chemicals or radioactive materials.
- Signs of severe dehydration include loss of consciousness, slowed or absent pulse, and difficulty breathing.
    - By the time someone is severely dehydrated they might be unable to drink anything and will need immediate medical care.
- If someone is showing signs of severe dehydration, call 911 or your local hospital. See signs of dehydration at the following links:
- https://www.cdc.gov/extreme-heat/about/index.html
- https://www.cdc.gov/niosh/topics/heatstress/default.html
- If you are unable to call and you are with someone who shows signs of severe dehydration, go to the nearest [depending on what's available in your jurisdiction: hospital/fire station/EMS station/police station or emergency medical triage center if one is established], located at [LOCATIONS].
    - Before leaving your building, put an additional outer layer of clothing and a mask or cloth that covers the nose and mouth on yourself and on the person you are assisting, if available. After you get help inside an emergency facility, remove the outer layer of clothing to help remove any potential contamination.
- If you are experiencing extreme temperatures or weather conditions, listen to emergency officials for more guidance on the use of different heating and air conditioning systems.

4.4.3. LOCALLY GROWN FOOD AND LOCALLY CAUGHT FISH OR GAME

Note: These messages can be used in areas where there is concern for low levels of fallout contaminating outdoor food resources. They also might be applicable in later phases, not covered in this document, when people in the affected area are returning to an area.

- Until we know more, do not pick or eat produce from your garden or eat any other food that was outside at the time of the detonation.
    - If you have fruits and vegetables that you picked before the nuclear detonation and were stored indoors, they are safe to eat after they have been washed.
    - Radioactive fallout might have contaminated the ground and any fruits, vegetables, or crops that were planted.
    - Follow local health authorities on whether locally caught fish and game collected after the incident can be eaten.
    - Listen for instructions from federal, state, local, tribal and territorial officials regarding food safety.

4.5. Social Media Messages

See Appendix III for IPAWS messages about immediate protective actions. The following messages are ready for social media use. Use and edit as you see fit. See the Introduction for more instructions on using social media messages.

4. FOOD, WATER, AND MEDICINE SAFETY	▪ The detonation released radioactive fallout, which is dirt/sand-sized particles. Fallout can get on food and drinks and contaminate them. Food, drinks, and medicine already indoors at the time of the detonation are safe to consume. See instructions: https://www.ready.gov/sites/default/files/2023-01/ready-gov_nuclear-detonation-safety_flyer1.pdf (275 chr; Graphic: ---)
4. FOOD, WATER, AND MEDICINE SAFETY & 4.2. PET FOOD SAFETY	▪ People sheltering should stay hydrated. Any food/drinks/medicine already indoors at the time of the detonation are safe to consume. Same goes for pet food. Food inside closed containers are safe if the containers are cleaned. See food safety instructions: https://www.ready.gov/sites/default/files/2023-01/ready-gov_nuclear-detonation-safety_flyer1.pdf (280 chr; Graphic:---)

4.3. MEDICATION SAFETY (Two messages)	▪ Continue taking medication while sheltering. Medicine already indoors at the time of the detonation is safe. If dirt/sand from outside got on your medication, clean the outer packaging before taking. Wash your hands after. See more instructions: https://www.ready.gov/sites/default/files/2023-01/ready-gov_nuclear-detonation-safety_flyer1.pdf (270 chr; Graphic: ----)
	▪ Continue taking life-sustaining medication, even if it's not in its packaging and you're worried that radioactive fallout might have fallen on it. Your health risk from not taking medication is likely greater than the risk of swallowing small amounts of radioactive material. (275 chr; Graphic: B,C)
4.4. WATER SAFETY & 4.4.1. DRINKING WATER (Two messages)	▪ Officials are checking for radioactive contamination in water. You can still use tap or well water for decontaminating/cleaning off and wiping down food packaging. If there is any contamination in water, it will be at very low levels. Stay tuned for drinking water safety info. (277 chr; Graphic: ---)
	▪ Water might be contaminated with radiation. Drink bottled beverages if you can. If unavailable, water from a toilet tank (NOT bowl) or hot water heater tank are safe. Boiling water and water filters do not get rid of radiation. Stay tuned for drinking water safety updates. (273 chr; Graphic: B)
4.4.2 DEHYDRATION	▪ Though there may be radioactive contamination in the water, you should stay hydrated. If you don't have access to safe water, and you might get dehydrated, drink tap water. Dehydration is more dangerous than drinking water with radioactive materials. (250 chr; Graphic: ---)
4.4.3. LOCALLY GROWN FOOD AND LOCALLY CAUGHT FISH OR GAME	▪ Radioactive fallout could have fallen in your area. Until we know more, do not pick or eat produce from your garden. Any food indoors at the time of the detonation is safe to eat/drink. Listen for instructions from local officials regarding food safety. (253 chr; Graphic: ---)

You can thread messages on Twitter to cover more information than standalone tweets. Combine these messages for platforms that do not have a character limit, such as Facebook and Instagram. See threaded messages below.

Thread 1

Message 1-3 4. FOOD, WATER, AND MEDICINE SAFETY	▪ The detonation released radioactive fallout, which is dirt/sand-sized particles. Fallout can get on food and drinks and contaminate them. Food, drinks, and medicine already indoors at the time of the detonation are safe to consume. See instructions: https://www.ready.gov/sites/default/files/2023-01/ready-gov_nuclear-detonation-safety_flyer1.pdf (275 chr; Graphic: ---) ▪ Food/drinks/medicine in containers – packages, refrigerators or cabinets – could be safe to consume if containers are cleaned. Wipe off the outer containers, dispose of the wipes in a bag away from people and pets, and wash your hands. Tap water is OK for cleaning. (267 chr; Graphic: C) ▪ Continue taking life-sustaining medication, even if it's not in its packaging and you're worried that radioactive fallout might have contaminated it. Your health risk from not taking medication is likely greater than the risk of swallowing small amounts of radioactive material. (278 chr; Graphic: C)
Message 4 4.4. WATER SAFETY & 4.4.1. DRINKING WATER & 4.4.2. DEHYDRATION	▪ Stay hydrated. If bottled drinks aren't available, water from a toilet tank (NOT bowl) or hot water heater tank are safe. Dehydration is more dangerous than drinking water with radioactive materials. Follow official water safety instructions. (244 chr; Graphic: C)

Thread 2

Message 1 4.4. WATER SAFETY	▪ If the detonation got radioactive contaminants into the water, the radiation levels are probably very low. Tap water is safe to use for washing people/pets and cleaning food/water/medicine packages. Drink bottled beverages if you can. Stay tuned for news updates about the water. (279 chr; Graphic: ---)
Message 2 4.4.1 DRINKING WATER & 4.4.2. DEHYDRATION	▪ Stay hydrated. Water from a toilet tank (NOT bowl) or hot water heater tank are safe. If you must, drink tap water. Dehydration is more dangerous than drinking water with radioactive contamination. Follow water advisories. (223 chr; Graphic: B)

Message 3 & 4 13.2. INFANT FEEDING SAFETY (**if tap water isn't deemed safe yet**)	▪ If you feed your baby with powdered infant formula, use bottled water if available. Boiling water and water filters do not get rid of radiation but can help with killing germs. Tap water is safe for cleaning. Carefully clean feeding supplies with soap and water after each use. (279 chr; Graphic: ---) ▪ Do your best to make sure your baby is hydrated and fed, even if you cannot take all the recommended actions to get clean water. Use tap water if you must. Hunger and dehydration are greater risks to your baby's health than radioactive contamination. (250 chr; Graphic: C)

4.6. Graphic Resources

These are available graphic resources. You can choose which one to use. Suggestions for social media message and graphic pairing are made above.

A: DHS Ready.gov Webpage about protecting yourself in the event of a nuclear explosion

B: DHS Ready.gov PDF about food, water and medicine safety

C: CDC Video about food and water safety (+ sign language version)

5. Evacuation

The decision to evacuate and evacuation procedures will vary greatly based on the situation and resources. Evacuation routes and destinations might be different for people in different areas or different neighborhoods. The guidance might change with time as radiation levels decrease, evacuation routes are cleared, and more resources become available. Messaging should be careful to reflect these uncertainties and the evolving nature of the incident to explain why some areas will receive different instructions than others.

5.1. Official Guidance and Evacuation Decisions

- Officials may have to evacuate people from some areas that have become unsafe.

- Decisions about when people should evacuate different areas are based on many factors, including the following:
    - Radiation levels, weather patterns, blast damage, road conditions, and availability of resources and services in different areas. *See* *16. Situations Based on Geography*
- Officials will tell you what steps to take after seeking shelter, based on the area you are currently in. Instructions might be different for people in different areas and might change with time. These decisions and instructions are based on safety for you, your community, and responders.
- Not everyone will be told to evacuate.
    - Officials gave the instruction to stay inside across a larger area than necessary to help protect anybody who could have possibly been affected, using the best information they had at the time.
    - Orders to stay inside were also issued to keep streets clear for emergency responders.
    - After the evacuation areas are assessed, people will be notified if/when it's safe to go back outside. *See* *18. Messaging Outside of the Affected Area*
- Do not evacuate until you are specifically told to do so. Continue to stay inside. Check official sources for updates and follow instructions. Staying inside protects you from radiation exposure and radioactive contamination. Only relocate to a different sturdy building if your building is threatened by fire or collapse.
- After you have evacuated, do not return until you are told it is safe to do so. *See* *5.3. Evacuation Process*

5.2. Preparing for Evacuation

Note: Use these messages when announcing evacuation orders if there is time for people to prepare. These messages also will be helpful for people in areas that will be evacuated soon. Giving people constructive actions to take during an emergency gives them a greater sense of control and helps prevent people from potentially destructive behaviors and filling information gaps with rumors and misinformation.

- Start to pack some essential items for evacuation while you are inside. Do not leave your building to retrieve any items. If you are in a place other than your home, do not go home before evacuating to retrieve any belongings. Some items you might want to pack for evacuation include the following:
    - Bottled drinks and packaged food items (and a manual can opener)
    - Diapers and feeding supplies (bottles, formula, etc.) for young children

- Prescription medications
- Medical devices
- Identification and important documents, such as birth certificates
- A change of clothing for everyone you are traveling with
- Your pet, pet food for a week, and pet medications
- Flashlight and extra batteries
- Credit cards and cash (if available)
- Cell phone and charger
- Battery-powered or hand-cranked radio (if available)
- First aid kit

- If you are with your family, stay with them. Do not go outside to find loved ones. Children and people in schools and care facilities will be evacuated and taken care of by facility staff.
- Check with neighbors to see if they need any assistance. Texting is best. If you are comfortable doing so, ask if they would like to evacuate with you.

5.3. Evacuation Process

- Officials will tell you how to safely evacuate.
  - It is important to follow official instructions because they will direct you away from the areas with the highest radiation levels and routes that are not passable or are dangerous from blast damage.
- When you are told to leave, unplug electrical equipment, and turn off water, gas, and electrical utilities.
- Leave a note in your home telling others where you have gone, when you left, and a phone number or other method to contact you.
- If you are evacuating in your own car, you might have to stop at a “check point” so you and your vehicle can be checked for radioactive contamination. You might be instructed to take some self-decontamination steps and your car might need to be washed.
- Official evacuation instructions are available at [WEBSITE]. Local authorities will provide information on assisted evacuation, evacuating on foot, and public transportation options.

- When you evacuate, you will be told to go to a specific location. You might be directed to go to a mass shelter or a community reception center (CRC). *See 6.1. About Community Reception Centers*.

5.4. Evacuating with Service Animals or Pets

- Find out from officials which community reception centers will accept pets [INCLUDE LINK INFO].
- Some shelters and community reception centers do not accept pets.
- All community reception centers and evacuation shelters are required to accept licensed service animals.
    - You will not be separated from your service animal at a mass shelter or community reception center (CRC).
- If you are evacuating with a pet, consider the following:
    - Listen to local radio news broadcasts for information on pet evacuation and the locations of available pet shelters.
    - Pets will not be allowed into any shelter until they are thoroughly washed to remove any radioactive material.
    - If possible, bring a cage, leash, food, medication, and veterinary records, including immunization records.

5.5. Social Media Messages

See Appendix III for IPAWS messages about immediate protective actions. The following messages are ready for social media use. Use and edit as you see fit. See the Introduction for more instructions on using social media messages.

5.1. OFFICIAL GUIDANCE AND EVACUATION DECISIONS & 5.2 PREPARING FOR EVACUATION	▪ People in [AREA], continue to stay inside. Emergency officials are assessing danger levels outside. Some may be asked to evacuate, and some won't have to. Only leave your building if you've been specifically instructed to do so. See how to prepare for evacuation: https://www.ready.gov/sites/default/files/2021-02/ready_checklist.pdf (≈278 chr; Graphic: ---)

5.2. PREPARING FOR EVACUATION	▪ While you're staying inside, start to pack some essential items for evacuation, such as IDs, packaged food/drinks, medicine, phone & charger, wallet/cash, etc. Do not leave your building to retrieve anything. See recommended list of items to pack: https://www.ready.gov/sites/default/files/2021-02/ready_checklist.pdf (270 chr; Graphic: ----)
5.3. EVACUATION PROCESS	▪ Some areas need to be evacuated. Listen to official instructions because they will direct you to the safest route. Only leave when instructed to evacuate. Instructions will include information on assisted evacuation and transport options. See how to pack: https://www.ready.gov/sites/default/files/2021-02/ready_checklist.pdf (270 chr; Graphic: ----)
5.4. EVACUATING WITH SERVICE ANIMALS OR PETS	▪ Evacuations may begin in some areas. Evacuation locations might not accept pets. If they do, clean the pets before evacuating. Bring a cage, leash, food, and vet records, if possible. Service animals will be accepted. Find out which places accept pets: [LINK] (276 chr; Graphic: ---)

You can thread messages on Twitter to cover more information than standalone tweets. Combine these messages for platforms that do not have a character limit, such as Facebook and Instagram. See threaded messages below.

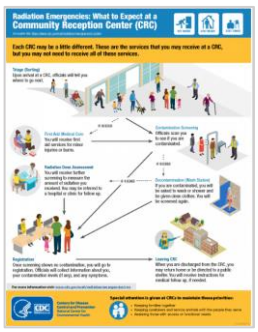
Message 1 5. OFFICIAL GUIDANCE AND EVACUATION DECISIONS & 5.2 PREPARING FOR EVACUATION	▪ People in [AREA], continue to stay inside. Emergency officials are assessing danger levels outside and may recommend evacuation. Which areas need evacuating depends on many factors and may change with time. Stay tuned for instructions for your specific area. (≈258 chr; Graphic: B,D)
Message 2 5.2. PREPARING FOR EVACUATION	▪ Be prepared to evacuate. Pack essential items for evacuation, such as IDs, packaged food/drinks, medicine, phone & charger, wallet/cash, change of clothes etc. Do not leave your building to retrieve anything. See recommended list of items to pack: https://www.ready.gov/sites/default/files/2021-02/ready_checklist.pdf (270 chr; Graphic: ---)

Message 3 5.3. EVACUATION PROCESS	▪ Only leave your building if you've been instructed to evacuate. Official instructions will direct you to the safest route and will also provide information on assisted evacuation and transport options. If you can, self-decontaminate before you leave. https://youtu.be/X8988d1zgDk (275 chr; Graphic: ---)
Message 4 15.5.4. RECOGNIZING OFFICIALS	▪ There might be responders helping your area with evacuation. Responders who are [facilitating evacuation] should have [IDENTIFYING CLOTHING/BADGE/ETC] that looks like this: [INSERT IMAGE OF OFFICIAL CLOTHING/BADGE/ETC] (≈218 chr; Graphic: ---)
Message 5 5.4. EVACUATING WITH SERVICE ANIMALS OR PETS	▪ Evacuation shelters/reception centers might not accept pets. If they do, decontaminate the pets before evacuating. Bring a cage, leash, food, and vet records, if possible. Service animals will be accepted. Find out which places accept pets here: [LINK] (268 chr; Graphic: D)

5.6. Graphic Resources

These are available graphic resources. You can choose which one to use. Suggestions for social media message and graphic pairing are made above.

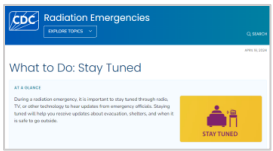
A: CDC Webpage and infographic about Community Reception Centers.



B: CDC Video about sheltering in place.

C: Ready.gov Emergency Supply List for basic disasters. Webpage here.

D: CDC Webpage about staying tuned and learning how to evacuate.



6. Population Monitoring and Community Reception Centers (CRCs)

Population monitoring after a nuclear detonation is the process of screening people for radioactive contamination and evaluating health effects from exposure. Most, if not all, of the short-term steps

for population monitoring should be built into community reception center (CRC) operations. CRCs can be vastly different depending on the jurisdiction, the response situation, and resources available. In most cases, people will receive assistance with self-decontamination and be referred for medical follow-up, if needed. The messages in this section provide some basic information to help people know what to expect at a CRC, how to proceed, and by doing so, minimize their anxiety and help improve understanding of the population monitoring process.

Messaging and instructions about pets will need to be developed at the local level based on whether and what services are available for pets and the processes determined by local officials.

6.1. About Community Reception Centers

- When it is safe to evacuate, emergency response officials might tell you to go to a community reception center. *See 5.3. Evacuation Process*
- Community reception centers will do the following:
  - Screen people and service animals for radioactive contamination
  - Provide first aid services, if needed
  - Provide resources, instructions, and assistance to self-decontaminate, if needed
  - Collect contact information for follow-up
- People with moderate or major injuries or people experiencing a medical emergency should go directly to a hospital or seek emergency medical care at [LOCATIONS]. They should not go to a community reception center.
- Don't wait until you go to a community reception center to decontaminate yourself and loved ones. If you were outdoors during the detonation, you should try to self-decontaminate as soon as you take shelter. *See 3.3. How to Self-Decontaminate*.
  - Getting radioactive material off you as soon as possible reduces the risk of harmful health effects from radioactive contamination.
  - Self-decontamination uses the same steps as decontamination at a community reception center, so it is just as effective. If you self-decontaminate before you arrive at a community reception center, you will be screened for any remaining radioactive contamination and will receive further help with decontamination, if needed.
  - People that can self-decontaminate while sheltering can move through the community reception center stations faster and can get the services and treatment they need more quickly. *See 3. Decontamination*

- People with licensed service animals should bring the animals with them to community reception centers.
    - A service animal means any animal that is individually trained to do work or perform tasks for the benefit of an individual with a disability, including a physical, sensory, psychiatric, intellectual, or other mental disability. Tasks performed can include, among other things, pulling a wheelchair, retrieving dropped items, alerting a person to a sound, reminding a person to take medication, or pressing an elevator button.
- Depending on available resources, some community reception centers also will be set up to handle pets. Check with your local officials before bringing a pet to a community reception center.

6.2. What People Going to Community Reception Centers Can Expect

- The community reception center is a location where people can get screened for radioactive contamination and get assistance for decontamination. The CRCs are set up with stations to gather information and provide different services. You will proceed through the stations as directed by community reception center staff.
- Community reception centers give special attention to the following:
    - Keeping families together.
    - Keeping caretakers and service animals with the people they serve.
    - Assisting persons with access or functional needs. *See 14. Access and Functional Needs*
- Local officials set up the community reception center in the [BUILDING/ARENA/LOCATION].
- When you arrive, you will enter through the triage station where people and families are sorted based on potential needs and receive instructions on next steps.
    - Tell staff at the triage station if you are pregnant, have a compromised immune system, or other underlying medical condition.
    - If you have a baby, tell community reception center staff how you are feeding your baby so that they can help you or advise you on how to feed your baby safely.
    - If you have a minor medical need (minor injuries), you may be directed to the first aid station prior to proceeding to the other community reception center stations.
- Community reception center staff will scan people, service animals, and important belongings (such as assistive devices, wallets, wedding rings) to detect possible contamination.

  - If contamination is detected, you might be sent to the "Wash Station" or decontamination zone.

  - If there is no need for further decontamination, you might be sent to "Registration" to provide contact details and other relevant information.

- If you are directed to a wash station or decontamination zone, you will have access to a shower or sinks where you can wash off radioactive contamination and get clean clothes. Staff will screen you again to make sure you have removed any radioactive material.

- At the registration station, staff will collect information about you, your contamination levels found during screening, your location at the time of the detonation, the route you used to get to the community reception center, and any symptoms that you experienced after the event.

  - Staff will use this information to determine whether you need further assessment to estimate how much radiation you were exposed to. A few community reception centers will have a dose assessment station on-site. If they don't, you will receive instruction on where to go for your dose assessment, if needed.

- Before you leave the community reception center, you will receive information on radiation and health and next steps to stay safe. You might also be referred for a dose assessment and/or medical follow up, if needed.

- *If applicable:* We understand this event has caused a lot of stress and anxiety. Counselors and mental health providers may be available at the CRC. *See 12. Coping and Mental Health*

6.3. Triage and Prioritization at Community Reception Centers

- Community reception center personnel will identify the potential needs of each person or family and provide instructions on the next steps. To expedite processing at the community reception center, people may be sorted by:

  - Suspected levels of contamination

    - Services will be prioritized for people with suspected high levels of radiation exposure (for example, people known to be outside and close to the detonation site who were unable to self-decontaminate.

  - Risk for harm from radiation

    - Services will be prioritized for people with higher risk for health effects, such as infants, children, and people who are immunocompromised.

  - Need for first aid for minor injuries or burns.

- Whether or not people will need assistance with access or functional needs (for example, people who do not speak or understand English and people with disabilities or underlying medical conditions).

6.4. Social Media Messages

See Appendix III for IPAWS messages about immediate protective actions. The following messages are ready for social media use. Use and edit as you see fit. See the Introduction for more instructions on using social media messages.

6.1. ABOUT COMMUNITY RECEPTION CENTERS	▪ People in [LOCATION] will evacuate to a community reception center at [TIME]. You [and your pets] will be screened for radioactive contamination. If needed, you'll be given resources to self-decontaminate and treated for minor injuries. See what to pack: https://www.ready.gov/sites/default/files/2021-02/ready_checklist.pdf (≈275 chr; Graphic: ---)
6.2. WHAT PEOPLE GOING TO COMMUNITY RECEPTION CENTERS CAN EXPECT (two messages)	▪ People in [LOCATION], you will be evacuated to a community reception center set up in the [BUILDING/ARENA/LOCATION]. There will be a "triage" station where you'll be assessed for any health concerns and given resources to decontaminate or get medical treatment. (≈260 chr; Graphic: A,B) ▪ If you're in [LOCATION], you may be evacuated to a community reception center where your health will be assessed. Tell the staff if you have medical conditions. There will be "wash stations," but self-decontaminating before you evacuate is best. What to pack: https://www.ready.gov/sites/default/files/2021-02/ready_checklist.pdf (≈279 chr; Graphic: ---)
6.3. TRIAGE AND PRIORITIZATION AT COMMUNITY RECEPTION CENTERS	▪ People in [LOCATION]—prepare for evacuation to a community reception center. Children/immunocompromised and injured will get special attention at the health assessment. Families can stay together. Bring your service animals [and pets]. You'll get more instructions once you arrive. (≈280 chr; Graphic: A)

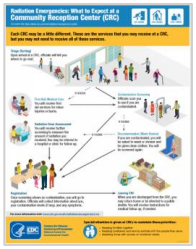
You can thread messages on Twitter to cover more information than standalone tweets. Combine these messages for platforms that do not have a character limit, such as Facebook and Instagram. See threaded messages below.

Message 1 6.1. ABOUT COMMUNITY RECEPTION CENTERS	▪ People in [LOCATION] will evacuate to a community reception center set up in the [BUILDING/AREA/LOCATION] at [TIME]. You [and your pets] will be assessed for radioactive contamination and other medical needs. See what to pack: https://www.ready.gov/sites/default/files/2021-02/ready_checklist.pdf (≈250 chr; Graphic: ---)
Message 2 5.2. PREPARING FOR EVACUATION	▪ Stay tuned for official instructions because they will direct you to the safest evacuation route. Items to evacuate with include IDs, packaged food/drinks, medicine, phone & charger, wallet/cash, change of clothes, etc. Do not leave your shelter to retrieve anything. (267 chr; Graphic: B)
Message 3 & 4 6.2. WHAT PEOPLE GOING TO COMMUNITY RECEPTION CENTERS CAN EXPECT	▪ At the community reception center there will be "triage" stations set up. Wash stations are available if you need to self-decontaminate or if the staff detect radioactive contamination on you. First aid stations can treat minor injuries. Tell staff if you have a medical condition. (280 chr; Graphic: A) ▪ Staff will be collecting info about where you were at the time of the detonation, your evacuation route, and any symptoms you've been experiencing. This is to assess your health and radiation dose. They'll be able to tell you more and instruct you on next steps when you get there. (280 chr; Graphic: ---)
Message 5 6.3. TRIAGE AND PRIORITIZATION AT COMMUNITY RECEPTION CENTERS	▪ People who were closest to the detonation, children/immunocompromised, and injured will get sorted to receive necessary attention. Families can stay together. Services will be provided for people with disabilities and non-English speakers. Bring your service animals [and pets]. (278 chr; Graphic: ---)

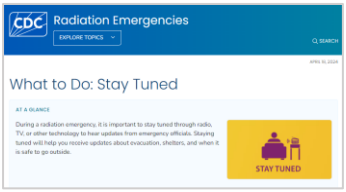
6.5. Graphic Resources

These are available graphic resources. You can choose which one to use. Suggestions for social media message and graphic pairing are made above.

A: CDC Webpage with infographic about Community Reception Centers.



B: CDC Webpage about staying tuned and learning how to evacuate.



7. Seeking Medical Care

- The three main hazards immediately after the nuclear detonation are 1) blast injuries or physical injuries caused by the detonation, such as injuries from flying glass and debris; 2) thermal injuries or burns; and 3) radiation injuries or radiation sickness. *See 8. Blast Injuries, 9. Thermal Injuries and Burns* and *10. Radiation Injuries*.

- *If applicable to the medical facility situation*: Only those with serious, life-threatening injuries should seek medical care, because medical facilities are overwhelmed.

- Look for significant changes in your own and your loved ones' mental and physical condition.

    - If you or anyone you are sheltering with experiences the onset of severe symptoms, such as significant trouble breathing, or changes in mental status, call 911.

    - If you are unable to call, go to the nearest [depending on what's available in your jurisdiction: hospital/fire station/EMS station/police station or emergency medical triage center if one is established], located at [LOCATIONS]. Put an extra layer of clothing and a mask or cloth that covers the nose and mouth on yourself and on anyone you are assisting. Remove the outer layer after you are safely inside.

- If you are injured and need to self-decontaminate, clean around the wound, and then treat your injury as you would an ordinary injury. Get a health care professional to decontaminate your wound once you have access to one. *See 3.3. How to Self-Decontaminate*.

    - It is important to treat your physical injuries. Apply the appropriate treatments, even if there is concern that it might result in some radiation contamination.

8. Blast Injuries

- Blast injuries can be caused by extreme air pressure and heat, collapsing buildings, and flying or falling debris all resulting from the explosion. The closer to the detonation you are, the worse these injuries are likely to be.
- Blast injuries can include damage to the eardrum from the strong pressure wave produced by the explosion. This damage might be temporary or permanent, depending on how much damage occurred.
- Immediate treatments for blast and thermal injuries from a nuclear detonation are critical. You can help injured people until medical care is available.
    - If a person is bleeding, put direct pressure on the wound, use clean gauze or cloth if available.
    - If a person is not breathing, administer cardiopulmonary resuscitation (CPR).
    - DO NOT attempt to move seriously injured persons unless they are in further danger of injury.
    - Cover injured persons with blankets to keep them warm.
    - If you or anyone you are staying inside with have serious blast injuries, call 911 or your local hospital.
    - If you are unable to call, go to the nearest [depending on what's available in your jurisdiction: hospital/fire station/EMS station/police station or emergency medical triage center if one is established], located at [LOCATIONS]. If possible, put on an extra layer of clothing and a mask or cloth that covers the nose and mouth on yourself and on anyone you are assisting. Remove the outer layer, once you are safely inside the hospital.
    - Blast and thermal injuries, when combined with radiation exposure, might have longer recovery and lasting health effects.

9. Thermal Injuries and Burns

- Burn injuries can be caused by exposure to fire, heat and high levels of radiation.
- Most burn injuries result from the intense thermal energy from the detonation, or the fires that flare up after the thermal pulse has passed. These thermal burns usually appear immediately.
- The initial brilliant flash of light produced by the explosion can cause flash blindness This blindness can last from a few seconds to a few minutes, or longer if the explosion occurs at night when the pupils are dilated. People with vision loss for more than a few minutes should seek medical assistance.

- Some people might have radiation burns, which you might hear referred to as beta burns or cutaneous radiation injury. These burns may take weeks to appear or appear without notable source of heat to cause it. *See 10.2.4. Beta Burns or Cutaneous Radiation Injury*
- Standard immediate burn treatments apply to burn injuries following a nuclear detonation.
- If you or anyone you are staying inside with have small, shallow burns on your arms, legs, or torso, you can perform first aid as you would for normal shallow burns:
    - Cover burns lightly with sterile gauze or clean cloth. (Don't use material that can leave lint on the burn because germs can stick to the lint and increase the risk of infection).
    - Do not apply ointments or butter to burns; these can cause infection.
    - Take steps to prevent shock: lay the person flat and, elevate their feet about 12 inches.
    - A person whose face is burned should sit up. Watch closely for breathing problems.
    - Elevate burned area higher than the head when possible. Keep person warm and comfortable and watch for signs of shock.
    - Do not place a pillow under the head if the person is lying down and there is an airway burn. This can close the airway.
- If you or anyone you are staying inside with has deep (involving all layers of skin), widespread burns across the body, call 911.
    - If you are unable to call, go to the nearest [depending on what's available in your jurisdiction: hospital/fire station/EMS station/police station or emergency medical triage center if one is established], located at [LOCATIONS]. If possible, put on an extra layer of clothing and a mask or cloth that covers the nose and mouth on yourself and on anyone you are assisting. Remove the outer layer, once you are safely inside the hospital.

9.1. Social Media Messages

See Appendix III for IPAWS messages about immediate protective actions. The following messages are ready for social media use. Use and edit as you see fit. See the Introduction for more instructions on using social media messages.

7. SEEKING MEDICAL CARE (two messages)	▪ People in [LOCATION] with serious injuries or symptoms, call 911. If this doesn't work, go to [hospital/fire station/EMS station/police station or emergency medical triage center], located at [LOCATIONS]. When going outside, put on a mask and outer layer of clothes that you can remove once you get inside. (≈250 chr)
	▪ *If applicable to the medical facility situation*: Only seek medical care for life-threatening injuries. Medical facilities are overwhelmed. Standard blast and burn treatments apply to injuries from a nuclear detonation. For bleeding, apply pressure then bandage. For burns, lightly bandage. Stay tuned for updates. (264 chr)
8. BLAST INJURIES	▪ If there are people sheltering with you who are bleeding, apply pressure on the wound and wrap it with clean gauze or cloth, if available. Call 911 for serious injuries. If you are unable to call, check if officials have set up a [hospital/fire station/EMS station/police station or emergency medical triage center] you can go to. (≈275 chr)
9. THERMAL INJURIES AND BURNS	▪ Standard burn treatments apply to burns from a nuclear detonation: cover lightly with gauze or a clean cloth. Do not apply ointments. Sitting can help with breathing problems. Call 911 for serious injury. If that doesn't work, assist the injured to a [hospital/fire station/EMS station/police station or emergency medical triage center]. (≈280 chr)

You can thread messages on Twitter to cover more information than standalone tweets. Combine these messages for platforms that do not have a character limit, such as Facebook and Instagram. See threaded messages below.

Message 1 7. SEEKING MEDICAL CARE	▪ People in [LOCATION] with serious injuries or symptoms, call 911. If this doesn't work, go to [hospital/fire station/EMS station/police station or emergency medical triage center], located at [LOCATIONS]. When going outside, put on a mask and outer layer of clothes that you can remove once you get inside. (≈250 chr)
Message 2 8. BLAST INJURIES & 9. THERMAL INJURIES AND BURNS	▪ Standard blast and burn treatments apply to injuries from a nuclear detonation. Treat someone bleeding by applying pressure on the wound and wrap it with clean gauze or cloth, if available. For burns, cover lightly with gauze or a clean cloth. Do not apply ointments.(≈275 chr)

Message 3 3.3. HOW TO SELF-DECONTAMINATE & 7. SEEKING MEDICAL CARE	▪ If you were outside at the time of the detonation and you're injured, you should still self-decontaminate to reduce your exposure to radiation. Clean the area around the wound, then treat the injury. Get a health care professional to decontaminate the wound once you can see one. (279 chr)

10. Radiation Injuries

10.1. Contamination and Radiation Exposure

- Radioactive contamination and radiation exposure are different, but both can result in a dose of radiation after a nuclear explosion.
    - **Radioactive contamination** is the presence of radioactive material, such as fallout. Both internal and external radioactive contamination will give off radiation, exposing the contaminated person to that radiation. For a nuclear detonation, external contamination is the bigger concern.
    - **Radiation exposure** is when radiation waves or particles pass through and interact with a body or object. X-ray radiation is an example of radiation exposure.
- Depending on the type of radiation, the radiation intensity, and the duration of exposure, radiation exposure can cause damage to cells and lead to harmful health effects.
- Self-decontaminate as soon as possible to reduce your radioactive contamination. *See 3. Decontamination*

10.2. Health Effects from Radiation

10.2.1. BACKGROUND CONCEPTS

- High amounts of radiation can affect the body in many ways.
    - The health risks from radiation depend on the intensity, the type, and the duration of radiation exposure.
    - The health risks from radiation also depend on which part and how much of the body is exposed to radiation, because different organs have different sensitivities to radiation exposure.
    - Babies, children, fetuses, and people who are immunocompromised (have a weakened immune system) are at greater risk for health effects from radiation.

- Low doses of radiation are unlikely to lead to harmful health effects. We are all regularly exposed to low levels of natural or background radiation without any effect on health. *See Appendix II: What is Radiation*
- Health effects from radiation exposure range from mild to severe:
  - A small increase in cancer risk over one's lifetime.
  - Mild to serious effects such as skin injury.
  - Severe effects such as acute radiation syndrome and death. *See 10.2.3. Acute Radiation Syndrome/Sickness*
- Some health effects appear within days of exposure and others can take years after an exposure to develop or manifest.
  - Short-term health effects include acute radiation syndrome and cutaneous (skin) radiation injury.
  - Health effects that might develop later include cancer and serious harm to the fetus if a pregnant person is exposed to high amounts of radiation.
- The best way to reduce your risk of health effects is to reduce your exposure to radiation by taking these protective actions:
  - Get inside and stay inside until you are told by officials or emergency responders that it is safe to leave.
    - To better protect yourself inside, stay in a room in the middle of the building or below ground in a basement. Thick, dense materials between you and the radioactive material outside increases your protection.
  - If you were outside during the detonation, self-decontaminate as soon as possible. *See 3. Decontamination*

10.2.2. CANCER

- Depending on the levels of radiation exposure, people could have a greater risk of developing cancer later in life.
  - Low doses of radiation may increase the risk of developing cancer by a small amount. If you have concerns about your health risks, talk to your doctor or a health official.
  - Health officials will monitor people affected by radiation emergencies for long-term health effects, including cancer. *See 6.1. About Community Reception Centers*

10.2.3. ACUTE RADIATION SYNDROME/SICKNESS

- Acute radiation syndrome, sometimes called radiation sickness or abbreviated to ARS, is a serious condition that can happen when a person's whole body, or most of it, is exposed to very high levels of radiation over a short period, usually a matter of minutes.
    - The best way to protect yourself from acute radiation syndrome is to get inside and stay inside the center of a large building or underground basement for at least the first 12-24 hours after the detonation, while radiation levels outside decrease through natural processes. *See 2.2. Stay Inside*
- The levels of radiation that can cause acute radiation syndrome are very high, hundreds to thousands of times higher than medical imaging or a radiological procedure.
- Symptoms of acute radiation syndrome include nausea, vomiting, headache, and diarrhea.
    - These symptoms might appear within days to weeks after exposure and can last for minutes or up to several days. The symptoms might come and go.
    - It is very common and understandable for people who have not been exposed to radiation to show similar symptoms due to stress from the incident. You must receive a very high dose in a short period to experience acute radiation syndrome. If you experience these symptoms shortly after the incident and you were inside at the time, it is most likely not caused by radiation exposure.
    - If you were near the incident and experience these symptoms, seek medical assistance. *See 7. Seeking Medical Care*
- With acute radiation syndrome, a person might experience minor symptoms within a few hours of exposure. Then they might look and feel healthy for a period of time, and then become sick again. The severity of symptoms depends on the radiation dose.
    - When a person becomes sick again, their symptoms could include loss of appetite, fatigue, fever, nausea, vomiting, diarrhea, and possibly even seizures and coma.
    - This seriously ill stage might last from a few hours up to several months.
- When a person has acute radiation syndrome, the high levels of radiation they received will destroy or severely damage the bone marrow, the organ in the body that creates both red and white blood cells. White blood cells are needed for preventing and fighting infections. Most deaths that occur from acute radiation syndrome are due to infections or internal bleeding. *See 11. Medical Care and Treatments*

10.2.4. BETA BURNS OR CUTANEOUS RADIATION INJURY

- Exposure to high doses of radiation can cause severe sunburn-like burns, which are sometimes referred to as beta burns or cutaneous radiation injury.
- Unlike thermal burn injuries that appear immediately, beta burns appear a few hours to several days after exposure. Symptoms include itchiness, tingling, skin redness, and swelling caused by buildup of fluid.
- A doctor will suspect the presence of a beta burn when a skin burn develops on a person who was not exposed to a source of heat, electrical current, or chemicals.
- Seek medical care immediately if you think you have a beta burn. The key treatments for beta burns are infection prevention and pain management.
- The visible skin effects of beta burns depend on the magnitude of the dose and the depth of penetration of the radiation. Most people with acute radiation syndrome will have beta burns.

10.3. Social Media Messages

See Appendix III for IPAWS messages about immediate protective actions. The following messages are ready for social media use. Use and edit as you see fit. See the Introduction for more instructions on using social media messages.

10.1 CONTAMINATION AND RADIATION EXPOSURE (two messages)	▪ A major radiation concern is fallout – dirt/sand-sized particles that fall to ground after a nuclear detonation and give off radiation. Stay inside and decontaminate in case any particles landed on you. Responders are determining danger levels outside and will provide updates. (277 chr; Graphic: C,D,E) ▪ Radioactive fallout can settle on a person's clothes, exposing a person to radiation externally. A person can also swallow these particles and be exposed to radiation internally. Staying inside protects you from external/internal contamination. Learn more: (https://www.cdc.gov/radiation-emergencies/infographic/contamination-versus-exposure.html or https://www.cdc.gov/radiation-emergencies/response/stay-inside.html or https://youtu.be/Ry2YpGjnakg) (279 chr; Graphic: ---)

10.2. HEALTH EFFECTS FROM RADIATION	▪ Health risks from radiation depend on the amount, type, and duration of radiation exposure. Responders are assessing the situation and will have updates. Best thing to do now is follow official instructions. Learn more about health effects from radiation: (https://www.cdc.gov/radiation-emergencies/signs-symptoms/possible-health-effects.html) (277 chr; Graphic: ---)
10.2.2. CANCER	▪ After a nuclear detonation, chances of developing cancer depend on the level of radiation exposure, which will vary for everyone affected. Responders are assessing radiation levels and will have updates. Medical assessments will be available. Stay tuned for updates. (266 chr; Graphic: F,J)
10.2.3. ACUTE RADIATION SYNDROME/SICKNESS (two messages)	▪ If you were NEAR the detonation and experience nausea, vomiting, headache, and diarrhea, you could have acute radiation syndrome. Call 911 and seek medical care. If you weren't near the detonation, you likely don't have acute radiation syndrome, even if you have these symptoms. (278 chr; Graphic: I,H) ▪ Radiation health effects range from severe to no effects. If you were close to the detonation and experience symptoms like nausea and diarrhea, you might have acute radiation syndrome. Call 911 and seek medical care. Learn more: (https://www.cdc.gov/radiation-emergencies/signs-symptoms/acute-radiation-syndrome.html or https://youtu.be/0r4YBkIlYJs) (250 chr; Graphic: ---)
10.2.4. BETA BURNS OR CUTANEOUS RADIATION INJURY	▪ If you develop sunburn-like burns that weren't caused by heat or other normal causes, they could be beta burns which are caused by exposure to radiation. They can appear a few hours to several days after exposure. Call 911 and seek medical care. Learn more: (https://www.cdc.gov/radiation-emergencies/signs-symptoms/cutaneous-radiation-injury.html or https://youtu.be/adwxmGCIJuI) (280 chr; Graphic: ---)

You can thread messages on Twitter to cover more information than standalone tweets. Combine these messages for platforms that do not have a character limit, such as Facebook and Instagram. See threaded messages below.

Thread 1

Message 1 & 2 10.1. CONTAMINATION AND RADIATION EXPOSURE	▪ One of the main radiation-related health hazards caused by the nuclear detonation is fallout – radioactive dirt/sand-sized particles that get released and fall to the ground. Get inside, stay inside, and decontaminate in case any particles landed on you. (256 chr; Graphic: C,D,E)
	▪ When radioactive materials get on an object or person, that person or object is contaminated. A person with radiation contamination is constantly being exposed to the radiation given off by the radioactive material on them. They should self-decontaminate as soon as they can. (276 chr; Graphic: C,D,E)
Message 3 3.3. HOW TO SELF-DECONTAMINATE	▪ Steps for self-decontamination: 1) Remove outer layer of clothing and put them in a bag away from people and pets. 2) Shower or wipe yourself off. Tap water is OK. 3) Put on clean clothes. 4) Help others. You can watch a video here: https://youtu.be/X8988d1zgDk (262 chr; Graphic: ---)
Message 4 10.2. HEALTH EFFECTS FROM RADIATION	▪ Health risks from radiation depend on the amount, type, and duration of radiation exposure. Shorter exposure is always better, which is why decontamination should be done quickly. Responders are assessing the situation and will have updates. Stay tuned. (254 chr; Graphic: A,B,F)
Thread 2	
Message 1 & 2 10.2. HEALTH EFFECTS FROM RADIATION	▪ Responders are gathering info about the detonation. How people will be affected by radiation depends on the amount, type, and duration of radiation exposure, which will vary for everyone. Medical professionals will be available to assess your health. More updates on that to come. (280 chr; Graphic: A,B,F)
	▪ Health effects from radiation exposure range from mild to severe. Severe effects appear immediately. Long-term effects include increased cancer risk. Very low doses might not cause harm. Protect yourself by following official instructions. Learn more: https://www.cdc.gov/radiation-emergencies/signs-symptoms/possible-health-effects.html (275 chr; Graphic: ---)

Message 3 10.2.2. CANCER	▪ Some people are at greater risk for health effects from radiation, such as babies, children, immunocompromised people, and developing fetuses. Seek out medical assistance as soon as you can, and they can tell you more about your situation. See more: https://www.cdc.gov/radiation-emergencies/signs-symptoms/cancer-long-term-health-effects.html (274 chr; Graphic: ---)

Thread 3

Message 1 10.2.3. ACUTE RADIATION SYNDROME/SICKNESS	▪ Severe radiation doses can cause acute radiation syndrome (ARS). Symptoms include nausea, headache, and diarrhea. These could also be caused by stress from the incident. If you were not close to the detonation, you probably don't have ARS. Learn more: (https://www.cdc.gov/radiation-emergencies/signs-symptoms/acute-radiation-syndrome.html or https://youtu.be/0r4YBkIlYJs) (275 chr; Graphic: ---)
Message 2 10.2.3. ACUTE RADIATION SYNDROME/SICKNESS & 10.2.4. BETA BURNS OR CUTANEOUS RADIATION INJURY	▪ ARS symptoms appear within days to weeks and might come and go. Those with ARS could also have beta burns – sunburn-like burns that develop a few hours to several days after an exposure. Burns that weren't caused by heat could be a beta burn. More info: (https://www.cdc.gov/radiation-emergencies/signs-symptoms/cutaneous-radiation-injury.html or https://youtu.be/adwxmGClJuI) (277 chr; Graphic: ---)
Message 3 7. SEEKING MEDICAL CARE	▪ If you might have ARS or beta burns, call 911. If that doesn't work, go to [hospital/fire station/EMS station/police station or emergency medical triage center], located at [LOCATIONS]. When going outside, protect yourself from radiation by putting on a mask and outer layer of clothes that you can remove once you get inside. (≈271 chr; Graphic: ---)
Message 4 11.1 MEDICAL TREATMENTS FOR HIGH DOSE EXPOSURE/ACUTE RADIATION SYNDROME	▪ Medical treatment for ARS involves treating infections and burns and, in some cases helping bone marrow recover its function. The lower the radiation exposure, the more likely it is that a person will recover from ARS. Recovery could take weeks to years. (255 chr; Graphic: ---)

10.4. Graphic Resources

These are available graphic resources. You can choose which one to use. Suggestions for social media message and graphic pairing are made above.

A: CDC Radiation Emergencies and Your Health webpage

B: CDC Possible Health Effects of Radiation Exposure and Contamination webpage

C: CDC Infographic about Radiation Contamin-ation Versus Exposure

D: CDC Contamination vs. Exposure webpage

E: CDC Video about Contamination vs. Exposure

F: CDC Cancer and Long-Term Health Effects of Radiation Exposure and Contamination webpage

G. CDC Cutaneous Radiation Injury Webpage

H: CDC Acute Radiation Syndrome (ARS): A Fact Sheet for the Public webpage

I: CDC Video about Acute Radiation Syndrome

J: CDC Video about Biological Effects of Radiation

K: CDC Video about Cutaneous Radiation Injury

11. Medical Care and Treatments

There is still widespread misunderstanding among the public about medical care and treatments for radiation exposure after a nuclear detonation. Messaging should enforce that internal contamination is not a primary concern after a nuclear detonation, potassium iodide (KI) is not an appropriate treatment for this type of incident, and protective actions, such as going inside and staying inside, are the best way to save lives and reduce injuries.

- Medical professionals will determine if medical treatments are appropriate, which treatment, who should participate, and how much.

- Treatments for acute radiation syndrome focus on reducing infections, maintaining hydration, and treating major injuries and burns. *See 11.1 Medical Treatments for High Dose Exposure/Acute Radiation Syndrome*

- Some medical treatments are available for limiting or removing internal contamination. However, internal contamination is not a primary concern after a nuclear detonation. People should follow official instructions and follow instructions for protective actions instead of seeking out treatments for internal contamination. *See 11.2 Deemphasize Medical Treatments for Internal Contamination*

    - Select medications can help limit or treat the health effects of certain types of radioactive materials.

- Listen to local authorities and medical professionals for the best ways to ensure the safety of yourself and your loved ones.

- Always get and check your information from reliable sources like medical professionals, emergency response officials and federal, state, local, Tribal, or territorial government officials

- Rumors and misinformation are extremely dangerous and spread fast, especially on the internet and social media. There will be information spread from unofficial sources that may provide outdated or intentionally false information.

11.1. Medical Treatments for High Dose Exposure/Acute Radiation Syndrome

- Treatment of acute radiation syndrome or radiation sickness focuses on reducing and treating infections, maintaining hydration, and treating injuries and burns. Some patients may benefit from treatments that help the bone marrow recover its function.

- The lower the radiation exposure, the more likely it is that the person will recover from acute radiation syndrome, even without medical treatment.

- For survivors of acute radiation syndrome, the recovery process might last from several weeks to up to 2 years.

    - Medications that speed up white blood cell production, called cytokines, might help the body heal and protect it from infections. Talk to your doctor or a health official to get the appropriate medication for your situation.

    - There are drugs used for cancer patients to stimulate the growth of white blood cells, making patients less vulnerable to infections. Patients who have bone marrow damage from very high doses of radiation could benefit in much the same way.

- Rumors and misinformation are extremely dangerous and spread fast, especially on the internet and social media. There will be information spread from unofficial sources that may provide outdated or false information.

- Always get and check your information from reliable sources like medical officials, emergency response officials and federal, state, local, Tribal, or territorial government officials.

11.2. Deemphasize Medical Treatments for Internal Contamination

- Following a nuclear detonation, internal contamination (eating, drinking, or breathing in radioactive material) is rare. Preventing and reducing your external exposure to radiation by getting inside and decontaminating should be your top priority. *See 2.2. Stay Inside and See 3. Decontamination.*

    - Following instructions for protective actions is the best way to protect you and your loved ones. Do not leave your home/building to get medication until officials have instructed that it is safe.

- It is highly unlikely that you will need medicine or treatment to prevent or remove internal contamination.

    - No pills will provide significant protection from internal contamination because nuclear detonations release hundreds of radioactive materials. Pills will only target one specific type of radioactive material. For a nuclear detonation, there is no “antiradiation” pill.

    - Only an assessment performed by a healthcare provider can determine if you need treatment for internal contamination. Medical treatments are available for limiting or removing internal contamination, but they are specific to the type of radioactive material involved and must be administered by a healthcare provider.

    - Always get and check your information from reliable sources like medical officials, emergency response officials and federal, state, local, Tribal, or territorial government officials.

11.2.1. POTASSIUM IODIDE (KI)

- Potassium iodide (KI) provides no protection from the primary hazard produced by a nuclear detonation, which is external exposure to radiation from radioactive fallout.

    - Potassium iodide (KI) only helps reduce the absorption of a very specific type of radioactive material, called radioactive iodine, into the thyroid. This can occur after breathing, eating, or drinking something with high amounts of radioactive iodine.

    - Radioactive iodine is only one of hundreds of different radioactive materials in fallout and it will likely make up only a tiny fraction of what gets released by the detonation.

- Do not take potassium iodide (KI) after a nuclear detonation if officials or medical professionals haven't told you to do so
    - You might think you are protected against radiation exposure when you are not.
    - Leaving a building or home to get potassium iodide (KI) could expose you to dangerous levels of radiation and put you and your loved ones at greater risk.
    - Potassium iodide (KI) can have harmful health effects, especially if not needed or not taken correctly.
- Take potassium iodide (KI) only if a healthcare provider or emergency response official tells you to, and only use potassium iodide (KI) products that are approved by the U.S. Food and Drug Administration (FDA).

11.3. Social Media Messages

See Appendix III for IPAWS messages about immediate protective actions. The following messages are ready for social media use. Use and edit as you see fit. See the Introduction for more instructions on using social media messages.

11. MEDICAL CARE AND TREATMENTS	▪ Only a medical professional can tell you if medical treatments are appropriate, what to take, and how much to take. Rumors and misinformation are extremely dangerous. Responders will help those in the area around the detonation get medical assistance. Stay tuned. (263 chr; Graphic: ----)
11.1. MEDICAL TREATMENTS FOR HIGH DOSE EXPOSURE/ACUTE RADIATION SYNDROME	▪ High doses of radiation could cause acute radiation syndrome (ARS). Call 911 if you experience nausea and diarrhea and you were near the detonation. Medical professionals can assess how much radiation you received and recommend treatment. Learn more: (https://www.cdc.gov/radiation-emergencies/signs-symptoms/acute-radiation-syndrome.html) (274 chr; Graphic: ---)
11.2. DEEMPHASIZE MEDICAL TREATMENTS FOR INTERNAL CONTAMINATION	▪ Following a nuclear detonation, internal contamination (swallowing/ breathing in radioactive material) is rare and treating it with medication is probably not necessary. The best way to protect yourself is to follow official instructions. Stay inside and avoid radiation outside. (280 chr; Graphic: ---)

11.2.1. POTASSIUM IODIDE (KI)	▪ Do NOT take potassium iodide (KI) or seek it out. It provides no protection from the primary hazard of a nuclear detonation, which is radioactive fallout particles. Check the source of any medical advice you see. Learn more about KI: (https://www.cdc.gov/radiation-emergencies/treatment/potassium-iodide.html or https://youtu.be/QkPz63htRms) (257 chr; Graphic: ---)

You can thread messages on Twitter to cover more information than standalone tweets. Combine these messages for platforms that do not have a character limit, such as Facebook and Instagram. See threaded messages below.

Message 1 & 2 11.2. DEEMPHASIZE MEDICAL TREATMENTS FOR INTERNAL CONTAMINATION	▪ Check the source of any medical advice you see. The best way to protect yourself from radiation is to avoid contact with radioactive fallout particles that rain down after a nuclear detonation. Follow official protective action instructions. (275 chr: Graphic: ---)
	▪ If you're worried you swallowed radioactive material and might have internal contamination, get an assessment from a medical professional once you are able to see one. Internal contamination is rare and treating it with medication is probably not necessary nor effective. (271 chr: Graphic: ---)
Message 3 & 4 11.2. DEEMPHASIZE MEDICAL TREATMENTS FOR INTERNAL CONTAMINATION & 11.2.1. POTASSIUM IODIDE (KI)	▪ Medicine can only target a specific type of radioactive material, while a nuclear detonation can release many types. For example: potassium iodide (KI) only targets radioactive iodine. It won't provide protection and could harm you. Learn more: (https://www.cdc.gov/radiation-emergencies/treatment/potassium-iodide.html or https://youtu.be/QkPz63htRms) (278 chr: Graphic: ---)
	▪ Do NOT go outside seeking medication. Do not believe sources that claim taking a drug will make you safe from radiation. Misinformation is dangerous and spreads fast. Only follow instructions from reliable sources like medical officials and emergency response officials. (270 chr; Graphic: ---)

11.4. Graphic Resources

These are available graphic resources. You can choose which one to use. Suggestions for social media message and graphic pairing are made above.

A: CDC Medical Countermeasures (Treatments) for Radiation Exposure and Contamination webpage

B: CDC Potassium Iodide (KI) webpage

C: CDC PDF about How Potassium Iodide (KI) Works

D: CDC Video about Potassium Iodide (KI) and Radiation Emergencies

E: CDC Video about Pharmaceutical Countermeasures for Radiation Emergencies – KI (Potassium Iodide)

F. CDC How Potassium Iodide (KI) Works webpage

12. Coping and Mental Health

- It is normal to feel stress, anxiety, grief, and worry after [EVENT NAME]. Everyone will react differently, and your feelings will change with time.
    - Stress can cause physical reactions such as body aches, upset stomach, and racing heartbeat, among other symptoms. It can make you feel irritable, overwhelmed, and easily startled.
        - If applicable: Psychological first aid can be administered to people directly impacted by the incident, including first responders operating in a high-stress environment. Learn more at: https://www.orau.gov/rsb/pfaird/01-introduction.html
    - These are normal reactions to significant traumatic incidents, such as what you have experienced.
    - People with preexisting mental health conditions should continue with their treatment plans during an emergency and monitor for any new symptoms.
- If you or someone you know is struggling to cope, you can call the Substance Abuse and Mental Health Services Administration's (SAMHSA's) Disaster Distress Hotline: 1-800-985-5990 (if you are deaf or hearing impaired, you can use your preferred relay service) or text TalkWithUs to 66746.
- If you or someone you know is experiencing a mental health crisis, dial 988 to connect with a mental health, suicide prevention, and substance use disorder counselor.

- Finding ways to help is also one healthy way to cope with feelings of grief. Make sure to use trustworthy sources and organizations to provide donations and support. *See 12.4. How to Help*

12.1. Helping Children Cope

- Talk to children calmly about what is happening in a way that they can understand. Keep it simple and appropriate for each child's age.
    - See the Center for Diseases Control's website about helping children cope with emergencies https://www.cdc.gov/childrenindisasters/helping-children-cope.html
- Give children opportunities to talk about what they went through or what they think about it. Encourage them to share concerns and ask questions.
- Address any rumors your child might hear and limit their exposure to media and images of the event.
- Set a good example by taking care of yourself.

12.2. Taking Care of Yourself Over Time

- Taking care of your emotional health during an emergency will help you think clearly and react to the urgent needs to protect yourself and your family. Notice and accept how you feel. Self-care during an emergency will help your long-term healing.
- Some common signs of stress include changes in energy and activities, changes in appetite, sleeping problems, physical reactions like headaches, body pains, and stomach problems, worsening chronic health conditions, changes in use of alcohol, tobacco, or other drugs, or having anger or a short temper.
- If you are not in the affected area, consider limiting how much you watch, read, or listen to media and social media about the event. It can be upsetting to hear about the crisis and see images repeatedly.
- Only share information from official sources. There will be many unofficial sources attempting to provide you information that could be out of date or false.

12.3. If You Have Loved Ones in the Affected Area

- The American Red Cross has a website for people within a disaster area to let their friends and loved ones outside of the affected region know of their well-being. https://www.redcross.org/get-help/disaster-relief-and-recovery-services/contact-and-locate-loved-ones.html
- Emergency responders are committed and trained to save the most lives they can in this type of emergency.

- Do not go to the affected area to try to find or rescue a loved one. It might place you and your loved ones in greater danger and hinder response operations.

12.4. How to Help

- Continue to stay inside. Do not become a victim.
- The best way to help is to follow instructions of emergency responders and stay away from the affected area to allow them to help as many people as they can.
- Do not go into the affected area to try to help.
- You might be able to provide shelter or donate items to people from the affected area.
- You can look for opportunities to make monetary donations. Look for charities you can trust and avoid scams: https://www.usa.gov/donate-to-charity
- Check with your local Red Cross for opportunities to donate blood.

12.5. Social Media Messages

See Appendix III for IPAWS messages about immediate protective actions. The following messages are ready for social media use. Use and edit as you see fit. See the Introduction for more instructions on using social media messages.

12. COPING AND MENTAL HEALTH	▪ It is natural to feel stress, anxiety, grief, and worry because of the nuclear detonation. Those struggling to cope can call the Substance Abuse and Mental Health Services Administration's (SAMHSA's) Disaster Distress Hotline: 1-800-985-5990 or text TalkWithUs to 66746. (270 chr)
12.1. HELPING CHILDREN COPE & 12.2. TAKING CARE OF YOURSELF OVER TIME	▪ In this difficult time, it's important to take care of your mental health. Being able to think clearly is necessary for protecting yourself and loved ones. Children should be encouraged to share concerns and ask questions. See tips for how to talk to kids: https://www.cdc.gov/childrenindisasters/helping-children-cope.html (280 chr)
12.3. IF YOU HAVE LOVED ONES IN THE AFFECTED AREA	▪ Do not go to the affected area to try to find or rescue a loved one. It might place you and your loved ones in greater danger and hinder response operations. Check the American Red Cross site for the status of people in the affected area: https://www.redcross.org/get-help/disaster-relief-and-recovery-services/contact-and-locate-loved-ones.html (262 chr)

12.4. HOW TO HELP	▪ The best thing you can do to help right now is listen to responders' instructions. If you are outside [AFFECTED AREA], do not go there to help. Check to see if the American Red Cross is looking for blood donations. You can donate items or money to charity: https://www.usa.gov/donate-to-charity (≈280 chr)

13. Health Effects for Populations at Higher Risk

Fetuses, babies, children, and people who are immunocompromised are at increased risk for harmful health effects from radiation exposure. Taking immediate protective actions – getting inside and decontaminating – is most important. While there are precautions parents might need to take when feeding infants, they shouldn't go outside to get supplies if they've been told to stay inside. People who are pregnant, lactating, or immunocompromised should tell emergency response officials or staff at evacuation shelters or community reception centers (CRCs) of their condition, when relevant. Those at higher risk might receive priority or additional screening and follow up.

13.1. People Who Are Pregnant

- Stay up to date and follow instructions from emergency response and public health officials. This is the best way to protect yourself and your fetus.
    - If you are told to go to a community reception center (CRC) or a public shelter, tell staff that you are pregnant when you arrive.
    - Emergency response or public health officials may provide different information for those who are pregnant. Instructions will explain what the changes are and why people who are pregnant are being asked to do something different than others.
- After any radiation incident, it is highly unlikely that exposure will cause damage to the fetus. If you are pregnant and have concerns, ask your healthcare providers, who will work in consultation with radiation professionals.
    - The pregnant person's abdomen partially shields the fetus from external exposures, so in most cases the fetus would receive a lower dose than the mother.
    - The possibility of health effects depends on the gestational age of the fetus (amount of time the fetus has been developing) at the time of exposure and the amount of radiation it is exposed to. Fetuses are at highest risk during their early development, roughly between weeks 2 and 18 of pregnancy.
- A fetus can be exposed to radiation when a pregnant person's abdomen (midsection) is exposed to radiation from outside of the body (external exposure), when a pregnant person swallows or

breathes in radioactive materials, or when radioactive particles enter the body through an open wound (internal contamination).

- When you can seek care, a healthcare provider in consultation with a radiation expert can assess the amount of radiation you and the fetus received. They can use this information to help determine potential risks and give advice and appropriate counseling.
    - After the Chernobyl disaster, some pregnant people in the area had unneeded abortions because they feared damage to their fetus. It is highly unlikely that exposure will cause damage to the fetus. Share any concerns you have with your healthcare provider to better understand the risks for your personal situation.

13.2. Infant Feeding Safety

- External contamination and exposure to radiation is a far greater concern than internal contamination, so the most important thing you can do is to follow instructions to get inside, stay inside and decontaminate. Do not go outside to get supplies for your baby if you've been instructed to stay inside. *See 3. Decontamination. See 10.1. Contamination and Radiation Exposure. See 3.1. Contamination from Fallout.*
- It is important to keep your baby fed and hydrated. Follow instructions on how to keep your baby safe from potential internal contamination. See *13.2.1. Breastfeeding. See 13.2.2. Pumped and Stored Breastmilk. See 13.2.3. Infant Formula.*
    - If you cannot do all the recommended protective actions, you should still feed your baby however you can. Do not go outside to get supplies if you've been instructed to stay inside.

13.2.1. BREASTFEEDING

- Where you were in the affected area when the incident occurred will affect your decision about how you feed your baby. If you were:
    - **Indoors with the doors and windows closed**, it is **safe** to continue breastfeeding.
    - **Outside and you have access to previously expressed breast milk or infant formula**, consider temporarily stopping breastfeeding. This will reduce the potential risk of transmitting radioactive material to your baby if you were internally contaminated from being outside in the affected area.
    - **Outside and you do not have access to previously expressed breast milk or infant formula**, continue breastfeeding to keep your baby fed and hydrated.
- **If you were outside, consider temporarily stopping breastfeeding.**
    - Hand express or pump your breast milk regularly and discard it to maintain your milk supply and prevent a breast infection.

- If you use a pump, carefully clean your pump kit parts after each use.
- Tap water may be used for cleaning even if local officials haven't confirmed it's safe to drink. If there are local water advisory instructions for using water, it's important to follow them. Only drink water once local officials confirm it's safe to drink. *See 4.4. Water Safety*.
- Breastfeeding can resume when advised by local health officials. For additional questions or concerns, contact your baby's doctor.
- If needed, reach out to a lactation support provider who offers phone consultations or telehealth appointments to help you manage your milk supply and create a temporary feeding plan for your baby.

- **If you have access to pumped and stored breastmilk or infant formula, follow instructions on how to feed your baby with those.** *See 13.2.2. Pumped and Stored Breastmilk and 13.2.3. Infant Formula*.
- **If you do not have access to pumped and stored breastmilk or infant formula, continue breastfeeding.**
  - It is important to stay inside and make sure your baby is hydrated and fed.
  - Wash your hands, nipples, and breasts thoroughly with soap and warm water before breastfeeding or expressing milk.
  - Tap water is safe for cleaning. *See 4.4. Water Safety*.

13.2.2. PUMPED AND STORED BREASTMILK

Feeding Pumped and Stored Breastmilk

- Use previously expressed breast milk to feed your child as it will not be contaminated.
  - Milk expressed before the incident, stored in a closed container inside the refrigerator or freezer should not be contaminated.
- Wash your hands with soap and water before feeding.
- After each use, carefully clean all infant feeding supplies such as bottles and nipples with soap and water.
- Tap water is safe for cleaning. *See 4.4. Water Safety*.
- Cup feeding is an alternative way to feed babies when infant feeding supplies cannot be cleaned properly.

- You can use disposable cups and then throw them away after use to protect your baby from germs that can grow in bottles and nipples.

13.2.3. INFANT FORMULA

Use ready-to-feed infant formula, if available.

- Ready-to-feed infant formula is a sterile liquid formula that does not need to be mixed with water.
- Ready-to-feed infant formula is safe to use if it has been stored indoors.
- If you need to use bottles and nipples for feeding, carefully clean all infant feeding supplies with soap and water. Tap water is safe for cleaning. *See 4.4. Water Safety.*
- Cup feeding is an alternative way to feed babies when infant feeding supplies, such as bottles and nipples, cannot be cleaned properly.
  - You can use disposable cups and then throw them away after use to protect your baby from germs that can grow in bottles.

Use powdered infant formula if you do not have ready-to-feed infant formula.

- Infant formula stored in a container indoors is safe to use.
- Do NOT leave your building or home to go get infant formula. It is safer to stay inside and continue breastfeeding.
- Follow radioactive decontamination steps for food safety.
  - If you had feeding supplies with you (including bottles and containers of infant formula) when you were outside during the incident, use a clean cloth or towel after you are inside to wipe them down before using them.
  - Put the used cloth or towel in a plastic bag or other container. Store the bag away from other people and pets until local health officials tell you how to dispose of it safely.
- Prepare powdered infant formula with bottled water if possible.
  - Tap water may be used if local officials say it is safe. Water that has radioactive materials in it will not be made safe by boiling or disinfection. However, boiling or disinfecting water can kill germs, so it's important to follow all local water advisory instructions.
  - If your baby is very young (younger than 2 months old), was born prematurely, or has a weakened immune system, you might want to take extra precautions to protect against Cronobacter infection.

- Wash your hands with soap and water before feeding.
- After each use, carefully clean all infant feeding supplies with soap and water. Tap water is safe for cleaning. *See 4.4. Water Safety.*
- Cup feeding is an alternative way to feed babies infant feeding supplies cannot be cleaned properly.
    - You can use disposable cups and then throw them away after use to protect your baby from germs that can grow in bottles.

13.3. Children

- Children are generally more likely to develop health effects from radiation exposure than adults.
- Younger people's tissues are still growing and their cells are multiplying more than those of adults. This makes children's cells more vulnerable to getting damaged, modified, or destroyed by radiation.
- It is especially important for parents to ensure children follow protective action instructions and to seek medical attention after a radiation emergency as soon as emergency officials say it is safe to do so.

13.4. People with Weakened Immune Systems

- If you have a weakened immune system (are immunocompromised), exposure to high amounts of radiation can further damage your immune system and make you more susceptible to infection.
- Medical treatments for radiation exposures might be less effective in people who are immunocompromised.

13.5. Social Media Messages

See Appendix III for IPAWS messages about immediate protective actions. The following messages are ready for social media use. Use and edit as you see fit. See the Introduction for more instructions on using social media messages.

13.1. PEOPLE WHO ARE PREGNANT	▪ If you're pregnant, the most important thing to do is take instructed protective actions and stay tuned. A developing fetus is more sensitive to radiation, but severe damage is unlikely. Talk to a medical professional as soon as you're able to. Learn more: https://youtu.be/1xaIld8dHv4 (280 chr; Graphic: ---)

13.2.3. INFANT FEEDING SAFETY	▪ If you have a baby, protecting them from being exposed to radioactive fallout outside is most important. Get inside and decontaminate. Stay tuned for more instructions from official sources. You may need to adapt your infant's feeding methods. See more: https://www.cdc.gov/radiation-emergencies/caring/pregnancy.html (275 chr; Graphic: ---)
13.3. CHILDREN	▪ The nuclear detonation released fallout particles that are radioactive. Children have a higher risk of developing health effects from radiation exposure than adults. Make sure children follow protective action instructions and seek a medical assessment as soon as it's safe. (275 chr: Graphic: ---)
13.4. PEOPLE WITH WEAKENED IMMUNE SYSTEMS	▪ If you are immunocompromised, exposure to high amounts of radiation can damage your immune system and make you more susceptible to infection. Make sure you follow protective action instructions and seek a medical assessment as soon as it's safe. (245 chr; Graphic: ---)

You can thread messages on Twitter to cover more information than standalone tweets. Combine these messages for platforms that do not have a character limit, such as Facebook and Instagram. See threaded messages below.

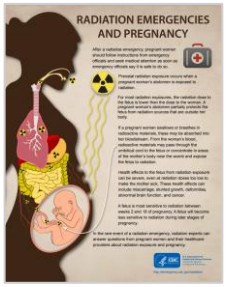
Message 1-6
13.2. INFANT FEEDING SAFETY

- If you are pregnant or have a baby and you were outside at the time of the detonation, the most important thing to do is to protect yourself from radioactive dirt/sand by getting inside and getting cleaned off. If you're pregnant, see more information: https://www.cdc.gov/radiation-emergencies/caring/pregnancy.html (278 chr; Graphic: ---)
- Once you're inside and cleaned off, consider taking extra precautions when feeding your baby. If you can't and you've been told to stay inside, don't leave to get supplies. Continue feeding your baby however you can. Keep your baby fed and hydrated: https://www.cdc.gov/radiation-emergencies/caring/infant-feeding.html (275 chr; Graphic: E,F)
- If you're breastfeeding and you were indoors with the doors and windows closed at the time of the detonation, it is safe to continue breastfeeding. If you were outside, consider temporarily stopping breastfeeding and switch to previously expressed breastmilk or infant formula. (277 chr; Graphic: ---)
- Wash everything that will touch your baby's mouth with soap and water – whether breastfeeding or using bottles. Tap water is safe for cleaning. If it's declared safe, you can use it to prepare powdered infant formula, otherwise use bottled water. See more: https://www.cdc.gov/infant-feeding-emergencies-toolkit/php/powdered-infant-formula.html
(280 chr; Graphic: ---)
- If you need to stop breastfeeding, hand express or pump your breast milk regularly and discard it to maintain your milk supply and prevent a breast infection. Make sure your hands and pumps are clean. Stay tuned for when local health officials say that breastfeeding can resume. (278 chr; Graphic: ---)
- If you were outside, the infant feeding supplies you bring inside are safe to use after decontaminating – wipe them down and place used wipes in a bag away from people/pets. Things in cupboards or refrigerators are safe to use, even if contamination might have gotten in the room. (280 chr; Graphic: F,G)

13.6. Graphic Resources

These are available graphic resources. You can choose which one to use. Suggestions for social media message and graphic pairing are made above.

A: CDC PDF about Radiation

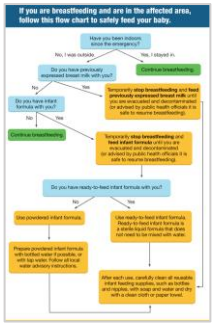


B: CDC Infant Feeding and Pregnancy webpage

C: CDC Video about Prenatal Radiation Exposure

D: CDC Radiation Emergencies and Children webpage

E: CDC Decision Tree Graphic webpage.



F: CDC Video about food and water safety (+ sign language version)

G. DHS Ready.gov PDF about food, water and medicine safety

14. Access and Functional Needs

- ***Access needs*** *concern barriers to reaching resources or gaps in resources needed to carry out protective actions in a radiation emergency (such as immediately getting inside and staying inside, putting on clean clothes for decontamination, or having transportation for evacuation).*

- ***Functional needs*** *are the special assistance or requirements needed to maintain health and well-being, and to carry out daily activities. Functional needs could include needing medications to manage an ongoing condition, having ongoing mental health support, and needing assistive devices like wheelchairs or oxygen.*

14.1. Populations with Access and Functional Needs

- While following protective instructions in a radiation emergency, some people will have additional or different needs from others. These are sometimes referred to as access and functional needs.
    - *Access-based* needs refer to instances when a person lacks access to resources, such as shelter, understandable information in many formats and languages, and transportation.
    - *Function-based* needs refer to instances when a person might require assistance before, during, or after an emergency.
- People with access or functional needs will have the same health effects from radiation exposure as the overall populations, unless they also belong to one of the groups that is at increased risk for health effects such as children, people with certain medical conditions.
- If you have medical, transportation, or other access needs during an emergency, contact [APPROPRIATE LOCAL AGENCY OR SERVICE] for help.
- Some groups of people with access and functional needs include the following:
    - People experiencing homelessness
    - People in correctional and detention facilities
    - People in long-term care facilities and hospitals
    - People with chronic health conditions
    - People with disabilities
    - People with limited ability to speak or understand English
    - Outdoor or agricultural workers
    - People with mental health or substance abuse disorders
    - Older adults

14.2. Access Needs

- Facilities with specific populations such as hospitals, long-term care facilities, nursing homes, prisons, and jails, might need to be evacuated.
    - If you are in one of these facilities, carefully follow instructions from facility management onsite and emergency officials.

- Facility staff and responders will work to take care of life-threatening needs and keep track of everyone to ensure no one is left behind.
- Maintain an orderly evacuation so that response officials can reunite you with loved ones.

- Some people, including people experiencing homelessness and outdoor workers, might not have immediate access to a place to get inside.
  - If you are outside during a nuclear detonation and do not have immediate access to a sturdy building, cover your mouth and nose with a mask, cloth, or towel as you head to the nearest building you can go inside.
  - If the closest building is a residential building, ask if they can let you inside with them and carefully self-decontaminate after you are inside. *See 3. Decontamination*

14.3. Functional Needs

- See *3.3.1. How to Decontaminate if You Can't Shower or Change Clothes* and *3.3.2 Helping Others Decontaminate*. Community reception centers (CRCs) can also assist with decontamination.
- For those who go to community reception centers (CRCs) or evacuation shelters, let staff know about medication needs and underlying health conditions. They will refer you to appropriate services.
- For people who need dialysis, the following steps can help you stay safe during an emergency, including:
  - If possible, follow the three-day emergency diet in your home to help limit the build-up of wastes in your blood until you can get dialysis. *See 4. Food, Water and Medicine Safety*
  - If you need immediate assistance, call the National Kidney Foundation (NKF) help line at 1.855.NKF.CARES (1.855.653.2273) or the Kidney Community Emergency Response (KCER) hotline at 1.866.901.3773.
- If you are running out of life-sustaining medication:
  - Call 911, if possible.
  - Seek help from a neighbor.
  - As a last resort, go to the closest medical facility.
- If you must go outside to get medical care or a medication, cover your nose and mouth with a mask, or cloth and wear an outer layer of clothing. Remember to clean yourself thoroughly when you come back inside. Remove your shoes and outer layer of clothes and put them in a bag as

far away from other people and pets as possible. If you're able to, shower and wash with soap and water and put on clean clothes. If you don't have access to a shower or clean clothes, gently brush of wipe off your clothing as best you can away from people or pets. Use a damp cloth or tap water to gently wash any uncovered skin. *See 3. Decontamination*

- A radiation emergency will be a stressful event for everyone, and stress can worsen symptoms for people with chronic health conditions and people who face or have a history of mental health or substance abuse disorders. *See 12. Coping and Mental Health*

14.4. Social Media Messages

See Appendix III for IPAWS messages about immediate protective actions. The following messages are ready for social media use. Use and edit as you see fit. See the Introduction for more instructions on using social media messages.

14.2. ACCESS NEEDS (Two messages)

- People outdoors at the time of the detonation need to get inside a building and decontaminate. This includes the homeless and outdoor workers. You will not contaminate others if you decontaminate once you're inside. See decontamination instructions: https://www.cdc.gov/radiation-emergencies/infographic/decontamination.html (273 chr)

- The nuclear detonation might result in evacuation in some areas. Facilities with specific populations such as hospitals, long-term care facilities, nursing homes, prisons, and jails can call [APPROPRIATE LOCAL AGENCY OR SERVICE] for help with transportation. (258 chr)

14.3. FUNCTIONAL NEEDS (Two messages)

- People with special medical needs, do your best to follow instructions. Get help with decontaminating, if needed. Call 911 for lifesaving needs. If that doesn't work, go to a [hospital/fire station/EMS station/police station or emergency medical triage center]. Wear a mask and outer layer of clothing that you can remove once inside. (280 chr)

- Those who need dialysis can try the three-day emergency diet while following instructions to stay inside. For assistance in kidney health, call: 1.855.653.2273 or 1.866.901.3773. Learn about the emergency diet: https://www.kcercoalition.com/contentassets/6270a03f0aef48ee8bb83100f04e37f2/kcer_-3-day-emergency-diet_final_508.pdf (234 chr)

15. Response Actions and Responsibilities

There will be gaps and lags in resources, services, and information. Acknowledgment and explanation of these limits and assurance that more help is on the way, if that is the case, helps prevent the public from feeling neglected or overlooked. It is important to continuously provide updates as the response evolves.

15.1. Management

- State, local, Tribal, and territorial government(s) in the affected area are managing the response. Emergency responders across the country have emergency preparedness and response plans and have trained for this type of disaster.
- The [state/local/Tribal/territorial] officials have called upon the federal government for assistance.
- The [state/local/Tribal/territorial] government will continue to work closely with the federal government, as experts, resources, and support arrive and are put into action over the next few days.

15.2. Federal Coordination

- Federal, state, local, Tribal, territorial and private-sector emergency responders are working to save lives as quickly as possible. As soon as the detonation occurred, local emergency responders, hospitals, and government officials began working to save as many lives and prevent as many injuries as possible.
- Various federal agencies serve as experts for different aspects of this emergency response and recovery. Their responsibilities include but are not limited to, managing logistics and resources, communications, transportation, environmental monitoring, protecting agriculture and natural resources, public health, emergency assistance, and long-term recovery.
- The U.S. Department of Homeland Security is the lead federal agency for this emergency response. The U.S. Department of Justice is coordinating law enforcement activities. (*Note: This applies to deliberate attacks in the United States. Different agencies might lead for other types of radiation emergencies. See* NUCLEAR/RADIOLOGICAL INCIDENT ANNEX (fema.gov))

15.3. Radiation Experts

- Radiation experts – including trained physicians, physicists, and professionals who specialize in the effects of radiation on the human body and the environment and how to reduce harm – are analyzing the effects of the detonation to help determine health and safety recommendations.
- Radiation experts from throughout the government are responsible for continuously monitoring radiation levels across the country. They are providing technical assistance on environmental

monitoring, decontamination and clean up, public health response, medical management of injuries and use of medical treatments for those who are at risk of, or are experiencing, health effects from radiation exposure or contamination.

15.4. Long-Term Support

- Government officials will be planning for longer-term assistance after emergency needs are met.
- Officials may have to restrict access to areas if radiation levels there remain high. Continue to follow guidance provided by officials.
- Officials will continue to monitor levels and let people know when affected areas are safe to return to.

15.5. Emergency Responders

15.5.1. WHAT RESPONDERS ARE DOING

- Emergency responders, including emergency medical technicians and emergency healthcare providers, police, firefighters, [and trained volunteers/Community Emergency Response Teams (CERT), Medical Reserve Corps, Citizen Corps, Radiological Operations Support Specialists (ROSS)] have been specially trained and equipped for emergencies like this.
- Emergency responder and government officials have and are following established plans and protocols designed to save as many lives as possible after a nuclear detonation.
- For your safety and the safety of the responders, follow their instructions.
- Rumors and misinformation are extremely dangerous and spread fast, especially on the internet and social media. There will be information spread from unofficial sources that may provide outdated or false information.
    - Always get and check your information from reliable sources like emergency response officials and federal, state, local, Tribal, local, or territorial government officials.

Note: Continue to provide updates as activities change

15.5.2. AREAS SAFE FOR RESPONDERS TO ENTER

- Radiation experts analyze radiation levels to determine whether an area is safe enough for emergency responders to enter and how to best help people in the affected area. Other hazards are also considered, such as blast debris and fires.
- After an area is safe enough for emergency responders to enter, they will provide medical assistance, firefighting, law enforcement, and evacuation assistance, if asked to evacuate.

- While emergency responders might be able to enter dangerous areas for short intervals, they will have radiation detection equipment and personal protective equipment (PPE) to keep them safe. The public may not be able to enter some areas near the detonation for days, weeks, or years.

15.5.3. INFORMATION SHARED BY RESPONDERS

- Radiation experts and emergency responders continue to gather information on structural damage, fires, radiation levels, location of radioactive material, and how quickly radiation levels are decreasing.

15.5.4. RECOGNIZING OFFICIALS

- First responders and emergency officials might be wearing their uniforms or extra protective equipment. Depending on the hazard, the equipment could range from a simple mask and gloves up to a full-body hazardous materials (hazmat) suit.
  - Responders wear such personal protective equipment (PPE) since they are spending so much more time in the hazardous areas than members of the public.
- Uniformed military personnel might be assisting in the response.
- You might see responders from your community, other local communities, or other government agencies.
- Responders who are [ACTION – facilitating evacuation, etc.] should have [IDENTIFYING CLOTHING/BADGE/ETC] that looks like this:
  - [INSERT IMAGE OF OFFICIAL CLOTHING/BADGE/ETC]

15.6. Other Safety Considerations

- For your own safety, do not pick up any materials or other debris unless you've been told it is safe to do so.
- Do not call your police station or 911 for non-emergencies because the phone lines must be kept open for life-saving and critical needs.

15.7. Social Media Messages

See Appendix III for IPAWS messages about immediate protective actions. The following messages are ready for social media use. Use and edit as you see fit. See the Introduction for more instructions on using social media messages.

15.1. MANAGEMENT & 15.3. RADIATION EXPERTS	▪ [State, local, Tribal, and territorial government(s)] are managing the response to the detonation. Emergency responders have trained for this type of situation and are working with radiation experts to determine health and safety recommendations. Stay tuned for official updates. (279 chr)
15.1. MANAGEMENT & 15.2. FEDERAL COORDINATION	▪ [State/local/Tribal/territorial] officials have called for federal assistance and will work closely with them as experts, resources, and support arrive. Various agencies serve as experts for different aspects of the response, such as emergency assistance, public health & environmental monitoring. (280 chr)
15.5. EMERGENCY RESPONDERS	▪ Emergency responders and government officials have and are following established plans and protocols intended to save as many lives as possible after a nuclear detonation. For your safety and the safety of responders, follow instructions and stay updated on new developments. (276 chr)
15.5.2. AREAS SAFE FOR RESPONDERS TO ENTER	▪ You might see emergency responders outside in dangerous areas. They have radiation detection equipment to keep them safe. This does not mean these areas are safe for you to go out in. Continue to follow official instructions on taking protective actions. (256 chr)
15.5.4. RECOGNIZING OFFICIALS	▪ Responders who are [ACTION – facilitating evacuation, etc.] should have [IDENTIFYING CLOTHING/BADGE/ETC]. Follow their instructions as you [TAKE ACTION]. [INSERT IMAGE OF OFFICIAL CLOTHING/BADGE/ETC] (≈155 chr)

16. Situations Based on Geography

Emergency response officials use the zone-based response framework. Help people understand why protective actions and response activities may vary between different areas. Try to use maps.

16.1. Direction of Fallout

- Fallout potentially containing dangerous levels of radioactive material travels by wind, rain, waterways/runoff, or snow to different areas. Weather and radiation experts and other scientists are tracking weather patterns to predict what areas radioactive materials might reach.
- Stay tuned for information. Officials will provide instructions if dangerous levels of radioactive fallout are predicted to reach your area.
- Radioactive fallout is predicted to go [DIRECTION] and reach [GEOGRAPHIC AREA]

- [PROVIDE MAP]
- People in this area should [See *2. Immediate Protective Actions*]

- These projections are based on atmospheric modeling and data collected by response groups and organizations that are trained in radiological emergencies.
- Information may change as we gather more data. This is why it is important to stay tuned to official sources for updates on protective actions and instructions.

16.2. Zone-Based Response

- You might hear emergency officials referring to different "zones," such as the light, moderate, and severe damage zones; the dangerous radiation zone; and the hot zone.
  - These zones are likely to change, and boundaries are likely to shrink, which may result in some changes to protective actions. Continue to stay tuned and listen to officials for protective actions, such as shelter in place or evacuation for your area.
- Responders and officials use the zone system for many reasons because:
  - The zones show geographic areas by level of risk and types of hazards (such as blast damage, radiation levels), based on computer models and measurements taken since the incident.
  - Responders use this information to determine when to go into an area and identify the most important actions and resources needed specific to that zone.
  - If you have not been told to take protective action, it is because you are outside the affected areas.
  - Protective actions will evolve over time. You will be given different guidance to deal with immediate hazards compared to less intense, longer-term hazards.
  - Safety precautions may be updated as more information becomes available. Stay tuned to television, radio, and government emergency management websites for updates.

16.3. Social Media Messages

See Appendix III for IPAWS messages about immediate protective actions. The following messages are ready for social media use. Use and edit as you see fit. See the Introduction for more instructions on using social media messages.

16.1. DIRECTION OF FALLOUT	▪ The nuclear detonation released radioactive fallout particles. Radiation experts are tracking weather and other factors to predict where it will reach. Officials will provide instructions if fallout reaches your area. Stay tuned in case you need to take protective actions. (273 chr)
16.2. ZONE-BASED RESPONSE	▪ You might hear emergency officials referring to different "zones," such as the light, moderate, and severe damage zones. This is how responders categorize risks. Follow official instructions to stay safe. If you haven't been given any, you are outside of the affected area. (274 chr)

17. Staying Tuned

A lot of misinformation and potential myths and rumors will occur organically or even intentionally, and it is important to direct people to reliable sources or information.

17.1. Where to Get More Information

- Stay tuned to television, radio and government emergency management websites/channels and their social media handles for updates. Public health and emergency management officials will provide regular updates. You also can go to the following websites and social media pages, or call the toll-free hotline, for information:
  - [INSERT AGENCY WEBSITE HERE]
  - [INSERT AGENCY SOCIAL MEDIA HANDLE]
  - [INSERT AGENCY PHONE NUMBER HERE]
- Rumors and misinformation are extremely dangerous and spread fast, especially on the internet and through social media. There will be information spread from unofficial sources that may provide outdated or false information.
  - Always get and check your information from reliable sources, such as emergency response officials and federal, state, local, Tribal, or territorial government officials.

17.2. Instructions Will Be Updated

- As additional information is gathered through sampling and monitoring, safety instructions will be updated.
- Instructions will be updated over time. Officials and experts have very little information immediately after a nuclear detonation.

- As more information is gathered, officials and decision makers will have a better understanding of what is going on.
- These safety instructions given immediately following an explosion are based on scientifically verified safety practices, and instructions will be refined and may change as we get additional information.
- These instructions are issued to protect the greatest number of people, as quickly as possible.
- With limited information, and with due caution to protect the public, instructions or messages for protective actions will cover broad areas. When we get more information, we might find that some areas included in previous instructions might not need to take some of the protective actions and can resume normal activities.
- Instructions may evolve or change over time as officials issue protective actions for the longer-term, lower risk hazards after the immediate, life-threatening hazards have passed.

17.3. Sources of Official Information

- If [FEDERAL/STATE/TRIBAL/LOCAL/TERRITORIAL JURISDICTION] has issued an emergency alert, it will be clearly identified as coming from [INSERT INFORMATION]. That is, the sender will read [INSERT INFORMATION].
    - For example, emergency alerts from [JURISDICTION] look like this:
    - [INSERT SCREENSHOT OF OFFICIAL MESSAGE]
- If you are unsure about a safety message, check [OFFICIAL PAGE/OFFICIAL HANDLE/OFFICIAL HOTLINE] first, before checking other sources of information.
    - [INSERT AGENCY WEBSITE HERE]
    - [INSERT AGENCY PHONE NUMBER HERE]
- If you have questions or are uncertain about something you hear, and cannot reach [INSERT AGENCY NAME] or if your concerns are about federal information, call or submit questions to the following:
    - For public health questions, the Centers for Disease Control and Prevention (CDC): 1-800-CDC-INFO or CDCinfo@CDC.gov
    - For questions about the Environmental Protection Agency's (EPA) response activities, go to [WEBSITE WITH EPA RESPONSE INFO] or go to EPA's Contact Us webpage: www.epa.gov/aboutepa/forms/contact-epa
    - If you have questions for [AGENCY] contact [EMAIL, PHONE NUMBER, WEBSITE].

17.4. Rumors and Misinformation

- Always get and check your information from reliable sources, such as emergency response officials and government officials. This is the best way to ensure your own safety and the safety of those around you.
- Rumors and misinformation are extremely dangerous and spread fast, especially on the internet and through social media.
- Social media might amplify messages that are not correct or might prioritize older posts with previous safety instructions over new/revised information.
    - We know from past disasters and emergencies that a few people might use the situation to send out official-looking but false information.
    - Even well-intentioned persons can pass on incorrect information or rumors.

17.5. Wireless Emergency Alerts (WEA)/Integrated Public Alert and Warning System (IPAWS)

- Wireless emergency alerts (WEAs) help distribute critical information to a broad geographic area of people with cell phones, TVs, and radios.
    - The emergency alerting system is controlled by federal, state, local, Tribal, and territorial governments, and is highly secure. You can be sure that emergency alert notifications, such as the one below, are coming from officials.
    - [INSERT SCREENSHOT OF WEA ALERT]
- Follow instructions listed in emergency alert messages. Doing this can save your life.
- Wireless emergency alert messages for [LOCATION] can be viewed at [WEBSITE]. You may also call [HOTLINE] to verify information, or if internet connectivity is low.

17.6. Social Media Messages

See Appendix III for IPAWS messages about immediate protective actions. The following messages are ready for social media use. Use and edit as you see fit. See the Introduction for more instructions on using social media messages.

17.1. WHERE TO GET MORE INFORMATION	▪ People in [AREA] stay informed. Public health and emergency response officials will provide regular updates. Follow [AGENCY NAME] @[SOCIAL MEDIA HANDLE] or call [xxx-xxx-xxxx] & [AGENCY NAME] @[SOCIAL MEDIA HANDLE] or call [xxx-xxx-xxxx]. Online updates: [WEBSITEXXXXXXXXXXXXXX]. (≈280 chr)

17.2. INSTRUCTIONS WILL BE UPDATED	▪ The safety instructions given after a nuclear detonation are based on scientifically verified safety practices to protect the greatest number of people as quickly as possible. Instructions will be refined and may change as we get additional information. Stay tuned for updates. (279 chr)
17.3. SOURCES OF OFFICIAL INFORMATION & 17.4. RUMORS AND MISINFORMATION	▪ Always check to make sure info is from a reliable source, such as emergency response officials and government officials. Rumors and misinformation are dangerous and spread fast, especially online. For official updates, follow [WEBSITExxxxxxxxxxxxx/@handle/call xxx-xxx-xxxx]. (≈280 chr)
17.4. RUMORS AND MISINFORMATION	▪ Rumors and misinformation are extremely dangerous after a nuclear detonation. Make sure you're following official sources for updates in your area. Even well-intentioned people might amplify false or outdated information. See where to get info: [WEBSITE] (≈270 chr)

18. Messaging Outside of the Affected Area

Smaller fallout particles can travel thousands of miles with the weather, and they're less dangerous than the larger fallout particles that rain down to the ground in the immediately affected area. They will probably reach downwind areas a day or more after the detonation. For this type of fallout, self-decontamination includes using wet wipes, washing your hands and face, showering and changing clothes.

18.1. Immediate Messaging for Potential Fallout

- Right now, everyone is being asked to stay inside after the nuclear detonation in [LOCATION X].
    - Dangerous radioactive fallout can travel many miles away from the site of the nuclear detonation.
    - Weather patterns and geography can affect how far and where radiation spreads. Temporarily staying inside will keep you safe while experts determine what areas might be at risk for increased radiation.
    - Radiation will be detectable at distances far beyond where any hazard exists.
- Scientists are tracking radiation levels and weather patterns to determine where fallout could be a problem. They are also measuring and monitoring radiation levels in your area to determine if it is safe for you to go outside.

- Follow official safety instructions and self-decontaminate if you've been told to do so. *See 3. Decontamination*

18.2. Stop Sheltering Once Determined Safe

- Radiation experts have measured the current radiation levels in [LOCATION] and confirmed that it is safe for people in [LOCATION] to resume activities. There is no threat to your health from radiation exposure if you are in and remain in the area. People in these areas do not need to evacuate.
    - Scientists and weather experts predict that dangerous levels of radiation will not reach this area.
    - Radiation will be detectable at distances far beyond where any hazard exists.
    - You were told to stay inside at first as an extra step to help keep everyone safe while experts in emergency response, radiation, weather, and law enforcement could gather information and data about the situation to make sure your area is safe.
    - Experts will continue to measure and monitor the radiation levels in your area as an extra precaution. We will continue to provide updates at [WEBSITE].
- Thank you for your cooperation staying inside while emergency response leadership and radiation experts gathered information.
    - It is safe to go about your daily activities outside of your home within [LOCATION/AREA].
    - Do not leave [LOCATION/AREA] at this time to keep yourself safe and to allow first responders to work as safely and effectively as possible to get to the affected areas and continue to save lives. *See 2.2.2. Separation From Loved Ones and See 12.3. If you Have Loved Ones in the Affected Area*
    - You can continue to check your local government or public health department's website for updates.
    - If the situation changes and you need to take protective actions, officials will tell you via [cell phone, soc media, text]
    - This is a very challenging and unprecedented event for everyone. Many across the country and the world share in a sense of shock and grief. Your continued cooperation, by listening to officials, is the best way to help responders and experts to serve those affected and to help make the situation safer for everyone. See *12. Coping and Mental Health*

18.3. No Increase or Slight Increase in Radiation Levels– No Health Risk

- There is naturally occurring radiation from the ground and from the sun, called background radiation. Those levels are monitored continuously, and they can be used as a point of comparison to see if the detonation has caused an increase in radiation levels in your area.

- *If applicable*: Radiation experts measured the radiation levels in [LOCATION] and confirmed that radiation levels have not increased because of the detonation. It is safe to go about your daily activities remaining in [AREA].

- *If applicable*: Radiation experts measured radiation levels in [LOCATION] and confirmed that even though they detected a very slight increase from the normal background levels, there are no health risks from radiation exposure to people in the area. This small increase will not affect the short-term or long-term health of you or your loved ones.

    - This small increase in radiation levels is going down with time. Stay tuned for more information.

- You and your family do not need to take any protective actions.

18.4. Social Media Messages

See Appendix III for IPAWS messages about immediate protective actions. The following messages are ready for social media use. Use and edit as you see fit. See the Introduction for more instructions on using social media messages.

18.1. IMMEDIATE MESSAGING FOR POTENTIAL FALLOUT	▪ Right now, everyone is being asked to stay inside after the nuclear detonation in [LOCATION X]. Weather patterns and geography can affect how radiation spreads. Staying inside will keep you safe while experts determine what areas might be at risk for increased radiation. (271 chr)
18.2. STOP SHELTERING ONCE DETERMINED SAFE	▪ Thank you for your cooperation staying inside while emergency response leadership and radiation experts gathered information. It is safe to go about your daily activities outside of your home. Stay within [LOCATION/AREA]. (≈215 chr)

18.3. NO INCREASE OR SLIGHT INCREASE IN RADIATION LEVELS – NO HEALTH RISK
(two messages)

- Radiation experts measured the radiation levels in [LOCATION] and confirmed that radiation levels have not increased because of the detonation. It is safe to go about your daily activities. Remain in [AREA]. (≈210 chr)
- Radiation experts measured radiation levels in [LOCATION] and confirmed that even though they detected a slight increase from normal levels, this will not affect your short-term or long-term health. It is safe to resume activities. Remain in [AREA]. (≈250 chr)

Appendix I

10 Guiding Principles for Emergency Communication Planning

Although every emergency response is unique, over the years, specific best practices for emergency communications have emerged. The 10 guiding principles described below, and the practice of **empathetic communications** described on the following page have contributed to successful emergency response communication strategies for all types of emergencies. Incorporating these guiding principles in your communication planning and execution will help turn the messages in this document into effective life-saving actions.

1. **Trained communicators should be involved in every level of planning, response, and recovery operations.**

   As communicators, you will understand how to best craft messages, identify spokespeople, and deliver critical advice for specific audiences, even if others will ultimately be responsible for message delivery. For most people in the affected area, messages about protective actions will reach them before any emergency responders arrive to the area. These messages might be the first life-saving resources your agency can deploy. Your training and expertise are needed for communications efforts, but can also help in determining preparedness outreach efforts, post-detonation response priorities, and recovery and reentry efforts. Communicators have the skills to ask insightful questions, even when communications is not the immediate topic at hand. Ensure your staff are either kept abreast of response actions or integrated with all lines of response efforts.

2. **Message Mapping Works**

   The federal government's radiation risk communications teams use a strategy called "message mapping,"[1] which is a science-based discipline that breaks messages down into three key components. It uses the primacy-recency principle to order components with the most important information first, and second most important information next. Message mapping's focus on short messages (27 words or less) is a useful tool to ensure messages are short enough for social media messages and sound bites in TV and radio interviews. For more information on message mapping and message development, see the U.S. Environmental Protection Agency's Communicating Radiation Risks: Crisis Communications for Emergency Responders.

3. **An Ounce of Preparedness is Worth a Pound of Response**

[1] Covello, 2006; Hyer & Covello, 2007

Emergency preparedness campaigns and outreach efforts can save lives and might help emergency responders provide assistance. The messages in this document are just-in-time messages for use in the first 24-72 hours following a nuclear detonation. When minutes matter and communications systems might be down, educating people BEFORE an incident happens will save lives.

Members of the public who receive the messages to "Get Inside, Stay Inside, and Stay Tuned"; self-decontaminate; and have emergency preparedness kits might be able to stay safer longer without first responder assistance. Some are concerned that preparedness messaging for nuclear emergencies can cause public alarm or that the risk seems too remote for some to take seriously. Several information campaigns in recent years have not shown that. However, one way to address this concern is to include nuclear and radiation emergency response outreach in the context of broader emergency preparedness education and campaigns.

4. **Immediate dissemination of safety messages saves lives: pre-approve messages with decision-makers before an incident happens.**

   The initial "Get Inside, Stay Inside, Stay Tuned" message relies on immediate delivery to protect people from potential fallout. People have about 15 minutes after a nuclear detonation to make critical decisions that could prevent a fatal radiation dose. Modeling done by the Lawrence Livermore National Laboratory shows that casualties from fallout can be reduced by orders of magnitude if people get inside immediately after a nuclear detonation. Is your communications approval chain ready to approve a message within that period? If not, it is up to you to have critical conversations with planners, incident commanders, elected officials, and decision-makers to ensure that you and your response organization can deliver this message as soon as a detonation has occurred.

5. **Audience identification—for the public, for your responders, and for stakeholders outside of the affected area—is a critical component of message development and delivery.**

   Throughout the process of assessing your community and responders' readiness in a nuclear emergency, you will develop an understanding of discrete audiences. Identify and keep track of the various audiences who might need differing types of communication in the preparations for and the response after a nuclear detonation. For example, a school will need different messaging than the general population. A large group of people with limited English proficiency will need messages translated into their native language(s).

   It is also important to work with response planners to account for populations with access and functional needs that could otherwise be barriers to performing protective actions and maintaining their general health. Those might include people with disabilities, chronic health conditions, and people experiencing homelessness. To some extent, each audience will have specialized information needs. These needs must be met in message preparation and approval, rather than in-the-moment. We will not have enough time to translate, to simplify, or rephrase a message immediately following a nuclear detonation.

6. **Use delivery methods that are trusted in your community.**

Message delivery methods might include social media platforms, government app notifications, alert text message platforms, and partner organization platforms. This strategy will only be useful if your agency has been posting through these accounts frequently in the past. After many natural disasters, impersonation accounts have been created to mislead or exploit survivors. These accounts might start to spread misinformation or disinformation. Establishing your presence early helps bolster the public's view of the validity and credibility of the information you are providing.

7. **You will not be able to do this alone.**

   Officials should have plans in place to coordinate the immediate response pending the arrival of federal assets and outside assistance. It is almost certain that your jurisdiction already has memoranda of understanding (MOUs) or mutual aid agreements with your surrounding jurisdictions, whether they are at the village-, town-, parish-, city-, or county-level. Using existing relationships will be important during a nuclear detonation response. If agreements are not already in place for communications and public affairs support, consider making them. Communications staff in neighboring jurisdictions will be critical to sending immediate shelter and decontamination messages to people in the affected area.

8. **Information will be updated as we learn more.**

   Updates to guidance can appear as though prior information was incorrect or that your agency is uncertain of its messaging. After a nuclear detonation, the situation and public recommendations will change with time as radiation decays, weather changes, and more information becomes available. It is important that messaging mentions that information will continue to be updated and guidance will change as we gather more data, learn more, or get more information. Giving regular updates and setting expectations in a changing environment will help ensure your audience stays tuned and trusts the information you share.

9. **Rumor Management is paramount to compliance with official protective actions.**

   In the aftermath of the Fukushima Daiichi nuclear power plant emergency, people in the United States searched for information about protective actions they might have to take in case the radioactive release affected them and their loved ones. This fear was exploited by people who pushed messages promoting unneeded use of potassium iodide (KI). That then brought questions about whether topical iodine, cleaning products containing iodine, and seaweed products would be protective.

   Rumors can often grow to fill information gaps or to explain the unexplained. Rumor management must happen early, often, and from a variety of sources to be effective. FEMA, for example, routinely address rumors to specific natural disasters. You should mimic this noted best practice following a nuclear detonation or natural disaster in your jurisdiction.

   Get ahead of rumors by ensuring that the public continues to get information from your agency without any long-time gaps. This might mean repeating or reinforcing messages when there is nothing new to report. Continue to ensure the public that they will be updated as

soon as your agency has any new information. Provide clear explanations for your main messages and response actions. For example, people might wonder why responders are not entering the severe damage zone (blast site) immediately after the detonation but are responding in other areas assumed to have fewer casualties. Without explanation, rumors could emerge that people in the severe damage zone belong to a marginalized group and officials are not valuing their lives. Explaining that it is not safe for responders to enter the area until the radiation levels have decreased prevents people from making up their own reasoning.

10. **Anticipate questions from a wide range of sources.**

    It's not only the press and your community that will be asking questions. People in the private sector, state and federal response groups, non-profit organizations, scientists, any myriad of stakeholders that need information or want to help will also have questions. You can't answer everything.

    Always defer to the appropriate lead agency or partner with expertise or responsibility for covering the topic of the question for the response. If you are unsure of the answer to a particular question that falls under the purview of your role or agency, take down the contact information of the inquirer if you do not have it and let them know you will get back to them. Be transparent about needing to consult with experts or leadership in your agency to be sure you provide the most accurate and confirmed answer. If someone asks a question that cannot be answered at the time, then acknowledge the information gap and explain what response officials are doing or will do to get the information to answer the question. For example, if someone asks what the environmental radiation levels are in a specific area before officials assess that area, you could say, "We do not know yet what the radiation levels are in the area. Environmental scientists and radiation experts are currently measuring radiation levels in the area and will share their findings right after they are confirmed. Continue to stay tuned for updates."

These 10 guiding principles will help any communicator, public information officer, and response official communicate formally (i.e., through the press, websites, social media) and informally (when face to face with someone who needs assistance). Keep these in mind as you develop your communication plans and when using messaging in this document.

Empathy in Emergency Communications

A nuclear detonation in the United States, like the one described in the *Planning Guidance for Response to a Nuclear Detonation*, would have varying degrees of physical, emotional, and economic impact on everyone in the country. Lives will be disrupted. At the same time, each person will be affected differently and will have their own thoughts, feelings, and reactions to the situation. These reactions will also change with time.

This communications guide provides messages you can use to keep your constituents informed and as safe as possible in the first 72 hours following a nuclear detonation. The goal of all messaging in

the first 24-72 hours after a nuclear detonation is to reach and motivate the greatest number of people to take life-saving protective actions. Effective messaging is critical immediately after a nuclear detonation. For most people in the affected area, protective action messaging will reach them before emergency responders do.

Empathy in Emergency and Risk Communications

The impact and life-saving capabilities of the messages in this document depends on how they are delivered. In addition to the Guiding Communications Principles, integrating empathy into your agency's communication is a necessary catalyst for effective message delivery. Expressing empathy builds and maintains the trust and attention of your audience, thereby fostering compliance and motivating people to "stay tuned" to communications from your agency.

Empathy Builds Trust and Compliance

Empathy means understanding and being able to relate to how someone else is feeling. In the context of emergency communications, empathy is expressed by acknowledging in words the range of feelings, perspectives, and beliefs of your message recipients.

Expressing empathy in messaging shows that your agency is taking into consideration the personal experiences, resources, and understandings of the affected population. It can also show that you "put yourself in their shoes" and if you were in their situation, you would follow the recommendations you are sharing.

Here are some examples of messages that express empathy:

- "Radiation emergencies are not common occurrences, and we understand that people throughout the world might be anxious and afraid right now."
- "This is a serious situation, and we thank you for your cooperation in staying inside and awaiting more information. We are committed to providing you with information and guidance on how to stay safe as the situation changes."
- "It might feel scary and disorienting to come out of your building or home right now. Experts have taken careful measurements of radiation levels and determined that the safest thing to do is evacuate the area."

Fine Lines and Pitfalls

To understand and effectively integrate empathy in emergency communications, it is also important to avoid some common pitfalls.

In psychology the term 'near enemy' refers to emotions or expressions of emotions that closely resemble each other at the surface but have the opposite effect. Sympathy is a near enemy of empathy. While well intentioned, saying sympathetic messages puts a barrier between you and your

audience by showing you feel badly about their situation but may not necessarily be trying to understand it or share the burden. It can also sound superficial. The word "sorry" is so common in our vernacular for a wide variety of contexts that it does not indicate the gravity of the situation.

Example:

> **Sympathy statement-** *"If you lived in [LOCATION], you will not be able to return home due to the long-term presence of high levels of radiation. We are sorry for your losses."*

Instead, you could say…

> **Empathy statement-** *"If you lived in [LOCATION], we recognize that you have already endured grief and losses deeper than many of us will ever know. We continue to prioritize your health and safety and work toward preventing more losses. Radiation experts determined it will not be safe for you to return to your homes due to the long-term presence of high levels of radiation."*

Another pitfall to watch out for is assuming or prescribing how people feel or should feel. Expressing empathy should acknowledge and verbalize, in a broad sense, some natural emotional reactions, commonly held beliefs, and/or the emotional atmosphere surrounding the situation. It should not be too specific about how the messenger thinks all people must be feeling. It's important to continue to keep in mind that each person will experience, perceive, understand, and react differently.

Example:

> **Statement assuming and assigning emotions-** *"If you are a parent with children at school right now, you are probably feeling anxious and guilty while separated and staying inside. You must stay inside and wait for instructions from officials. Do not try to go get your children. Schools have plans in place for these types of emergencies."*

Instead, you can say…

> **Empathy statement-** *"We understand that right now parents may want more than anything to protect and be with their children. If your children are at school, the best way to protect your children and you is to continue to stay inside and wait for instructions from officials. It may feel like you are fighting with your instincts. Remember that schools have plans in place to help protect children in these types of emergencies."*

How to Integrate Empathy into your Communications

A general rule from risk communication experts is to include an empathy statement within the first 30 seconds of a press briefing or public engagement about an emergency to help the public accept your message. However, expressing empathy will be important at every phase of the response and is especially important when sharing difficult news or major shifts.

Expressions of empathy should not be scripted. Empathy evolves in reaction to perceiving, understanding, and trying to relate, to the extent possible, to other peoples' experiences and the thoughts, feelings, and reactions.

Try to gain an understanding of your audience and imagine yourself in their situation. When pressed for time in an emergency, a quick scan of social media or public questions can give clues about some of your audience's overall perceptions, concerns, misunderstandings, and mood. When it comes to radiation there is strong evidence that there are many misperceptions and misunderstandings about radiation and in some contexts, an exaggeration of risk, among the greater public.

An empathetic approach meets people where they are at. Respectful and empathetic communications acknowledge concerns and takes them seriously, even if a source of anxiety seems irrational or a belief is debunked by scientific reasoning.

Integrating empathy into your communications cultivates trust and compliance and helps turn messages into action.

Appendix II

The information in this section is not critical for protecting the public. However, because radiation is a complex topic, these messages can be used when needed to answer questions or further explain instructions or concepts used in protective messaging.

What is Radiation?

- Radiation is the energy released from unstable atoms in the form of particles or waves.
    - Some atoms are unstable and release energy to become stable. These atoms are radioactive.
    - Ionizing radiation is a type of radiation that can damage DNA. Non-ionizing radiation does not damage DNA. A nuclear explosion releases ionizing radiation.
        - At large enough amounts, ionizing radiation can affect the atoms in living things and pose a health risk by damaging tissue and DNA in genes.
    - Although you cannot see, smell, hear, feel, or taste radiation, it can be detected using special equipment.
- We are all exposed to low levels of radiation in our day-to-day lives. There is radiation present in the natural environment. Some sources of background radiation are cosmic radiation (from space) and natural radioactive materials in the ground.
- Radioactive material from a nuclear explosion might emit any of four types of ionizing radiation, each with different abilities to damage cells in your body:
    - Gamma rays
        - Gamma rays are the largest source of radiation exposure from a nuclear detonation. They typically pass directly through the body.
        - Several feet of concrete or another dense material are required to stop gamma rays, which is why it is important to stay inside.
        - Gamma rays and x rays deposit some energy in people's tissues (organs) that can cause harmful health effects.
    - Beta particles
        - Beta particles can cause radiation damage such as skin burns.

        - Beta particles can be stopped by a single layer of clothing or by a thin layer of protective material.
        - Beta particles are most hazardous when they are inhaled, ingested, or enter the blood stream through wounds.
    - Alpha particles
        - A piece of paper or the outer layers of skin will stop alpha particles.
        - Radioactive material that emits alpha particles (alpha emitters) is most harmful when inhaled or ingested, or when it enters the blood stream through wounds.
    - Neutrons
        - Neutrons are released immediately after a nuclear explosion. Neutrons are very penetrating, but only last only a few seconds in the affected area.
- All four types of radiation can be blocked by multiple concrete walls or a thick layer of dirt.
    - The differences in how types of radiation can cause harm is complex, which is why it is so important to follow protective actions from officials. These protective actions are for your safety and protection.

Radiation Health Effects

Health effects from radiation exposure depend on a combination of different factors:

- The type of radiation, which are listed above.
- The amount of radiation a person is exposed to.
- How radiation was absorbed by the body.
    - Different organs have different sensitivities to radiation.
- How long a person was exposed to radiation.
    - Receiving a dose of radiation over a long period of time will result in fewer health effects compared to the same dose received all at once. This is because the body can repair itself if given time.
- How sensitive the body is to radiation.
    - Everyone has different sensitivities to radiation.

- Young people have more cells dividing rapidly and growing tissue, which makes their likelihood of developing cancer greater than that of an adult. They also have a longer lifespan ahead of them, giving cancer more time to develop.

Damage to DNA

- Radiation can damage DNA, which can lead to cell damage. The extent of the damage depends on the dose of radiation.
- Radiation can damage or alter cells.
  - In these cases, cells can repair themselves or repair themselves incorrectly, which might lead to cancer in the future.
- Cells that have been damaged too much will die.
  - If only a few cells die, the body can recover. High radiation doses can cause too many cells to die, which can lead to organ failure and death.

Immediate/Early Health Effects

- A high dose of radiation delivered over a short time can cause symptoms that show up quickly. *See Acute Radiation Syndrome/Sickness.*

Delayed Health Effects: Cancer

- Cancer from a radiation exposure may appear long after the exposure. The higher the radiation dose, the higher the cancer risk. See EPA's webpage on Radiation Health Effects.
- The increased risk for developing cancer from exposure to low doses of radiation is extremely small — too small to measure.
  - All U.S. residents have about a 40% chance of developing cancer in their lifetime. Many factors contribute to the risk for cancer, including genetics, diet, smoking, exposure to chemicals, UV radiation from the sun and many other factors.
- It is very difficult to predict a person's health risk from a dose of radiation.

Appendix III

IPAWS

Introduction

The Integrated Public Alert and Warning System (IPAWS) is a national alert and warning infrastructure available for use by federal, state, local, tribal, and territorial public alerting authorities to send emergency alerts to communities. FEMA built the IPAWS to support Presidential public warning requirements and to enable federal, state, local, Tribal and territorial authorities to effectively alert and warn people in their jurisdictions of local incidents and emergencies.

Legislation reflected in Section 321o-1 of the Homeland Security Act of 2002 authorizes the Federal government to alert the public of a missile threat against a State by using the IPAWS. Current federal procedures are to announce information about a missile threat to state and local warning points connected to FEMA's National Warning System (NAWAS) phone network enabling state and local authorities to quickly send an alert to the public utilizing the IPAWS or other local systems. The messages below are recommended for authorities to use to quickly warn and provide protective action guidance to the public in advance of and immediately following a nuclear detonation.[2]

The IPAWS distributes alerts to people's cell phones as Wireless Emergency Alerts (WEA), to radio and television stations in the Emergency Alert System (EAS), to NOAA Weather Radios, and to other voluntarily participating private sector communications systems such as electronic billboards and signage, and automotive infotainment and navigation systems. Recent updates to legislation gave the FEMA Administrator authority to use IPAWS to issue a National WEA alert to cell phones. Additionally, FEMA maintains the National Public Warning System (NPWS) for broadcast of an audio warning message from the President from 77 specially equipped radio stations. The President's broadcast will then be relayed by all other television and radio stations that participate in the Emergency Alert System (EAS). Additional information on IPAWS can be found in chapter 7 of the third edition of the Planning Guidance for Response to a Nuclear Detonation.

COMPONENTS OF A "COMPLETE" MESSAGE

Risk communication experts have established the following essential messaging elements to compose an effective message while recognizing that some variance will exist given character

[2] 47 CFR Part 10 & 6 U.S. Code § 321o - Integrated Public Alert and Warning System modernization and 6 USC 321o-1- Integrated Public Alert and Warning System.

limitations due to cell phone age.[3] Messages that contain these elements are "complete" warning messages that provide people in an emergency situation with the best available information to get them through a very confusing time before, during or after a disaster. The messages also prompt people to quickly take protective action to protect themselves, and others, without delay. Alerting authorities should refer to these principles when writing any public alert or warning.

- Source: State who the message is from. Source credibility varies among warning recipients, so try to provide a mixed panel of sources. Be sure to include local fire chiefs; they are viewed as the most credible warning message source in the United States.
- Hazard: Describe the impending hazard event and how it threatens people.
- Location Personalization: Specify the geographic bounds of the area at risk in terms the public can understand (e.g., street names most people know and landmarks). Say that people in this area should take the protective action, and that people not in this area need not take action.
- Consequences: Describe the physical effects of the hazard, and its effects on people in the area at risk.
- Protective Action Guidance (PAG): Tell people exactly what to do to maximize their safety and provide specific instructions about how to do it.
- Protective Action Initiation & Completion Times: State when the public should begin and complete the protective action.
- How the Protective Action Reduces Consequences: Tell people how the protective action they are being asked to take will reduce the negative effects they might experience.
- Expiration Time: State when the warning expires or when new information will be released.

Additionally, risk communication experts emphasize the importance of using "specific" and "clear" messages.

- Specific
    - YES/specific: If you are between the river and First Street, move north of Main Street.
    - NO/not specific: Evacuate if you are near the river.

[3] Preptalks: Dr. Dennis Mileti "Modernizing Public Warning Messaging (2018). https://www.fema.gov/blog/preptalks-dr-dennis-mileti-modernizing-public-warning-messaging

- Clear
    - YES/clear: A wall of water 20 feet high moving faster than a person can run.
    - NO/not clear: A ten thousand cubic foot per second flow, moving at 20 feet per second.

Creation of short 90-character messages is required to ensure effective use of all the public alerting pathways available via the IPAWS. Although most cellular networks and phones now support reception and display of WEA messages up to 360 characters long, several communications systems supporting distribution of alerts from IPAWS continue to use the 90-character format.

The following messages are formatted for IPAWS use through the Emergency Alert System (EAS) and through Wireless Emergency Alerts (WEA).

Message Timing

Table 1: Message Timing Guidelines

Guideline	*Order of Messages*
Send when there is advanced notice of a nuclear attack. You may choose not to use the word "nuclear" if the attack has not been confirmed as nuclear.	WEA Message 1
Send when a detonation is confirmed as nuclear.	WEA Message 2
Send immediately after a detonation, it's possible you may send this before WEA Message 2. You may choose not to use the word "radioactive" if the attack has not been confirmed as nuclear. This might apply to subsequent messages as well.	WEA Message 3 WEA Message 4 (a and b) EAS Message A
Send promptly after first message and repeat periodically (every 10 minutes or so) during the first hour. These messages are intended to be distributed as a group and there is no reason to wait between sending each message. *Additionally, target WEA 6 to the surrounding areas where self-evacuation may occur*	WEA Message 4 (a and b) WEA Message 5 WEA Message 6 WEA Message 7 EAS Message B
Send at about 1 hour after the explosion and repeat as necessary	WEA Message 8 EAS Message C
Send when appropriate, as evacuation planning proceeds	WEA Message 9 EAS Message D
Send at any time, as required to draw attention to important new information.	WEA Message 10

WEA 90- AND 360-CHARACTER MESSAGES

Consider eliminating source after 1st message, but only if you don't have enough characters to include it.

Table 2: WEA 90- and 360-Character Messages

#	*90-Character Messages*	*360-Character Messages*
1	[SOURCExxxxxxxxxx] warns (nuclear) attack in [LOCATIONxxxxxxxxx]. Get inside, stay inside NOW. (89) *You may choose not to use "nuclear" if it is not confirmed*	[SOURCExxxxxxxxxx] warns (nuclear) attack is imminent in [LOCATIONxxxxxxxxx]. Get inside a basement or central room of a sturdy building NOW and stay away from windows and doors. Stay inside. Listen for more info. Do not leave unless officials provide other instructions or your shelter is threatened by fire or collapse. (320)
2	[SOURCExxxxxxxxxx] warns nuclear attack in [LOCATIONxxxxxxxxx]. Get inside, stay inside NOW. (88)	[SOURCExxxxxxxxxx] warns a nuclear detonation has occurred. People in [LOCATIONxxxxxxxxx] - get inside, stay inside, stay tuned for more information. Prepare to stay inside for at least 24 hours unless officials provide other instructions, or your building is threatened by fire or collapse. Follow instructions from officials – this can save your life. (349)
3	[SOURCExxxxxxxxxx]—Blast released [radioactive] particles outside. Get inside, stay inside NOW. (84) *You may choose not to use "radioactive" if the attack has not been confirmed as nuclear. You can use alternatives, such as toxic, dangerous, or hazardous.*	[SOURCExxxxxxxxxx]—An explosion has released [radioactive] particles in [LOCATIONxxxxxxxxx]. Stay inside or go to the nearest sturdy building now. The sooner you get inside, the safer you will be. Go to a basement or interior room. Stay away from outside walls. You will protect yourself by staying inside. Stay tuned for more information. (334)

#	*90-Character Messages*	*360-Character Messages*
4a 4b	[SOURCExxxxxxxxxx]—[Radioactive] fallout danger outside. Go inside. Brush yourself off gently. (90) [SOURCExxxxxxxxxx]—If you can, remove outer clothes. Shower/wash or wipe yourself clean. (86) *You may choose not to use "radioactive" if the attack has not been confirmed as nuclear. You can use alternatives, such as toxic, dangerous, or hazardous.*	[SOURCExxxxxxxxxx]—[Radioactive] fallout particles outside are dangerous. Get inside and remove outer clothing and shoes. If you can't, gently brush yourself off away from others. Clean off by showering, if possible. If you can't shower, use a wet cloth to wipe yourself off. Change into clean clothes if you can. Help others clean off. Clean pets. (344)
5	[SOURCExxxxxxxxxx]—Kids in schools are safest staying there. Going outside now is dangerous. (90)	[SOURCExxxxxxxxxx]—Do not try to reunite with loved ones yet. Children in schools and people in health facilities are safest where they are. You put both your loved ones and your own safety at risk by being outdoors or in cars. Going outside now is dangerous. You will be helped to reunite with your loved ones when it is safe to do so. (334)
6	[SOURCExxxxxxxxxx]— Let others come inside with you. Have them clean themselves off. (82) *You may choose not to use "radioactive" if the attack has not been confirmed as nuclear. You can use alternatives, such as toxic, dangerous, or hazardous.*	[SOURCExxxxxxxxxx]—Allowing others to come inside with you can save their lives. Have them clean off any [radioactive] fallout particles by removing shoes and outer clothing or gently brushing themselves off in an area away from people and pets, and by showering, if possible. The fallout is dangerous, but the people themselves are not. (333)
7	[SOURCExxxxxxxxxx]—Put used wipes and removed clothing in bags, away from people and pets. (88) *You may choose not to use "radioactive" if the attack has not been confirmed as nuclear. You can use alternatives, such as toxic, dangerous, or hazardous.*	[SOURCExxxxxxxxxx]—[Radioactive] fallout from outside is dangerous. Place towels used for wiping, clothing you removed, shoes, and anything worn or carried while outside and brought inside, into bags and put those as far away from people and animals as you can. This will help protect your health. (291)
8	[SOURCExxxxxxxxxx]—Plan to stay inside at least 24 hrs. Food/drinks inside are safe to use. (88)	[SOURCExxxxxxxxxx]—You should plan to stay inside at least 24 hours. Stay hydrated. Food/drinks inside are safe to consume. Drink tap water if nothing else is available. Keep pets indoors. (186)

#	*90-Character Messages*	*360-Character Messages*
9	[SOURCExxxxxxxxxx]—You may be evacuated at some point. It is not safe to go outside yet. (86)	[SOURCExxxxxxxxxx]—You might be asked to evacuate at some point. Be prepared to move quickly when the evacuation begins. Gather personal documents, medications, pet food, and other essentials, if you have them. The evacuation will be planned for everyone's health and safety. Cooperate with official evacuation instructions when they come. (337)
10	[SOURCExxxxxxxxxx]—Updated information will be released at ##:##$M. Check local media. (84)	[SOURCExxxxxxxxxx]—Updated information will be released at ##:##$M. Check local radio, television, or other news media. (117)

EAS MESSAGES

MESSAGE A

[SOURCExxxxxxxxxx] warns a detonation has released [radioactive] particles in [LOCATION]. Stay inside or go inside the nearest sturdy building now. The sooner you get inside, the safer you will be. Go to a basement or interior room. Stay away from outside walls. [Radioactive] fallout particles from outside are dangerous. Clean yourself off by removing shoes and outer clothing. If you cannot remove outer clothing, gently brush yourself off in an area away from people and pets. Shower as you would normally, if possible. Use a wet cloth or tap water if a shower is not available. Put on clean clothes if they are available. Also help others who need it and brush or bathe pets. Place towels used for wiping, clothing you removed, shoes, and anything worn or carried while outside and brought inside, into bags and put those as far away from people and animals as you can. This will help protect your health. (908) *THIS SHOULD LOOP TWICE.*

You may choose not to use "radioactive" if the attack has not been confirmed as nuclear. You can use alternatives, such as toxic, dangerous, or hazardous.

MESSAGE B

[SOURCExxxxxxxxxx] recommends that people get inside a sturdy building and stay inside due to dangerous [radiation levels] outside in [LOCATION]. Do not try to reunite with loved ones. Children in schools and people in health facilities are safest where they are. You put your loved ones and yourself at risk by being outdoors or in cars. You will be helped to reunite with your loved ones when it is safe to do so. Allowing others to come inside with you can save their lives. Have them clean off any [radioactive] fallout particles that might have fallen on them. The particles are dangerous, but the people themselves are not. If they can, they should remove shoes and outer clothing. If they cannot remove outer clothing, they can gently brush themselves off in an area away from people and pets. Have them shower, if possible, or wipe themselves off at a sink. Place wet cloths used for

wiping, removed clothing, shoes and anything worn outside and brought inside, into bags and place them away from people and pets. (1,019) *THIS SHOULD LOOP TWICE.*

You may choose not to use “radiation levels” or “radioactive” if the attack has not been confirmed as nuclear. You can use alternatives, such as toxicity levels/ hazard levels and dangerous/toxic/hazardous.

MESSAGE C

[SOURCExxxxxxxxxx] recommends people in [LOCATION] remain indoors to avoid contact with the dangerous [radioactive] fallout particles outside. Plan to stay inside at least 24 hours. Drink plenty of water if you have it. Bottled water or sealed beverages are safest. If those are not available, tap water can be used. All food indoors at the time of the detonation are safe to consume. Keep pets indoors. (399) *THIS SHOULD LOOP TWICE.*

You may choose not to use “radioactive” if the attack has not been confirmed as nuclear. You can use alternatives, such as toxic, dangerous, or hazardous.

MESSAGE D

[SOURCExxxxxxxxxx] recommends people in [LOCATION] continue to stay inside. It is not safe to go outside yet. You might be asked to evacuate at some point. Be prepared to move quickly when the evacuation begins. Gather personal documents, medications, pet food, and other essentials, if you have them. The evacuation will be planned for everyone’s health and safety. Cooperate with official evacuation instructions when they come. (426) *THIS SHOULD LOOP TWICE.*

Appendix IV

RadResponder and Public Information Officer (PIO) Resources

Public Information RadResponder Resource Library

The PIO Resource Library contains resources, documents, and videos for public communications during a radiological or nuclear incident. It is open to the public and does not require a login. The rest of the site is restricted to emergency responders and requires a login. *The PIO Resource Library is currently not available on the CBRNResponder app.*

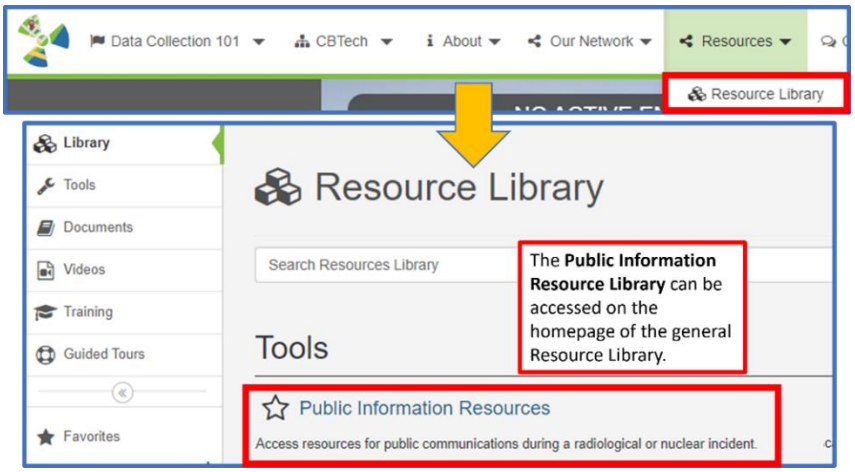


Figure 2. Accessing Public Information Resources in RadResponder Resource Library

View **over 150 resources** including: Radionuclide Fact Sheets, Resource Translations, Pre-Scripted Public Messages, Infographics, and CDC and FEMA video guidance.

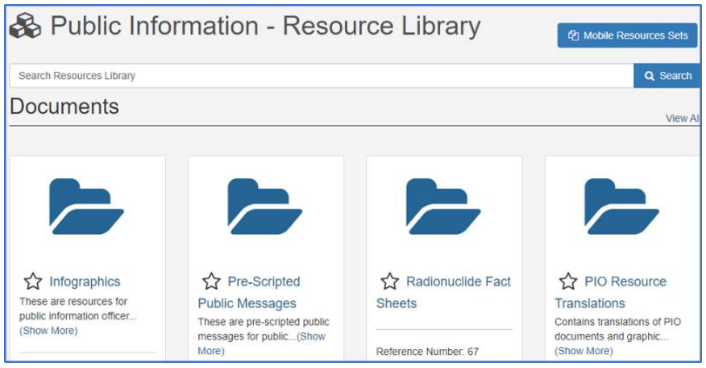


Figure 3. Public Information Resources

PIO RadResponder Role

The Public Information Officer (PIO) role is available at the organization and event level. The PIO role gives the user the ability to create and direct resources to a certain set of persons offline. These resources are sent in a standardized "resource set" to specific users, field teams, or specific roles (i.e., you can send a resource set to every user with the PIO role, every user on a certain event, etc.) To learn more about the PIO role and how to use Mobile Resource Sets, use the job aid on our website here.

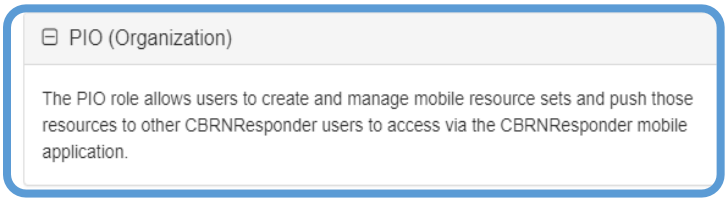


Figure 4. PIO Role

How to Request a RadResponder Account

To request an account, navigate to radresponder.net and select "Request an Account". Agree to the Terms of Use and then search for the organization you most closely associate with or request to create a new one.

Figure 5. Steps for RadResponder Account Request

Account Approval Process

Figure 6. RadResponder Account Approval Process

Appendix V

Anticipated Questions

Journalists are likely to ask six questions in a crisis (who, what, where, when, why, how) that relate to three broad topics: (1) what happened; (2) what caused it to happen; (3) what does it mean. The following list contains examples of anticipated questions that cannot be answered until incident has occurred and recovery operations have commenced.

What Happened

- Why did this happen?
- What was the cause?
- Did you have any forewarning this might happen?
- Why wasn't this prevented from happening?
- What else can go wrong?
- Who caused this to happen?
- Who is to blame?

Immediate Response

- What's being done right now?
  - Who is on-scene?
  - Who is investigating?
- Who is leading the response?
  - Who else is involved in the response?
  - How often will you hold meetings/briefings, etc.
  - Who is your spokesperson?
  - Where do I go for the latest information? (Note: Be sure to monitor for misinformation and disinformation, and direct people to official sources.)

Potentially Non-public Information (for officials, etc.)

- What kind of contamination was released? How far is it spreading?
- Who is responsible for this?
- How did they get fissionable materials?
- Will there be another attack?

Further Incident Details

- How certain are you the situation is under control?
- What can we expect next?
- Could this have been avoided?
- When did your response to this begin?
- When were you notified that something had happened?
- What is your (local official) personal opinion?
- What are you (local official) telling your family?
- Is the public water safe to drink?
- Will locally caught fish or game be safe to eat after this? If not, for how long will it remain unsafe to eat local fish and game?

Extent of Damage and Closed Areas

- What areas in [LOCATION] are closed?
    - What transportation lines are closed (highways, roads, rail lines, airspace, etc.)
    - Is there a travel advisory?
- What critical infrastructure has been damaged?
    - What actions do people have to take because of infrastructure damage (e.g., water contamination, shutting off gas at the main line, etc.)?
- How certain are you about the damages?
- What are you advising people to do?

- How long before the situation returns to normal?
- What is the worst-case scenario?

Health

- How many people will get acute radiation syndrome ("radiation sickness")?
- What are the health risks from being exposed to radiation from the blast?
- How many people have died?
- How many people are seriously injured and require medical treatment?
- How many people are being exposed to radiation levels of concern?
    - How many people are projected to die from radiation exposure?
    - How many people will get acute radiation syndrome ("radiation sickness")?
- Where can I get checked for radiation?
- What community reception centers or other types of evacuation shelters are being set up?
- What hospitals and medical facilities are open?
    - Where can people go for emergency medical treatment or urgent medical care for conditions that are not life threatening?
    - What medical facilities can accept victims who might be contaminated?
    - Are there special instructions for people requiring specific types of care (e.g., burns, radiation effects, trauma, etc.)

Data

- What data are being collected?
- How are the data being collected?
- What do the numbers mean in terms of potential health effects?