UNITED ARAB EMIRATES
THE SUPREME COUNCIL FOR NATIONAL SECURITY
National Emergency Crisis and Disasters Management Authority

الإمارات العربية المتحدة
المجلس الأعلى للأمن الوطني
الهيئة الوطنية لإدارة الطوارئ والأزمات والكوارث

Your Guide for Emergencies

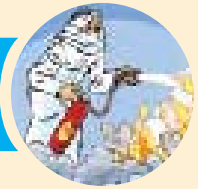
1. During Natural Disasters and Power Outage

2. During War Emergencies

3. Protection Against Acts of Sabotage

4. Administering First Aid

5. Protection Against Fires



6. Caring for People with Special Needs

“Preparedness is the most important step towards protection”

2014

3 – Protection Against Acts of Sabotage

Terrorism…. and acts of sabotage

Terrorism is an aspect of violence committed by humans within the community. Its meaning is related to "terror and terrorising" and is defined by some as "any hostile act using violence and force against civilians, with the aim of demoralising the 'enemy', by terrifying civilians using all sorts of violent means."

The term "terrorist" indicates all those who carry out operations aiming at instilling fear and terror in peaceful people.

If we look at terrorism as an image of violence witnessed by the international community since long, and developing with the progress of the community and different social relations… we notice that terrorist attacks, regardless of their atrocity, have never been as dangerous as they are today. Indeed, they are gaining momentum and claiming innumerable lives, particularly with the appearance of new forms of terrorism using scientific and technological innovations.

Consequently, "terrorism" has become one of the most popular terms worldwide, in a time where crime rates are soaring and crimes are taking increasingly diversified forms. Hence, terrorism has become a perturbing and disturbing reality for many communities, nations and countries.

Acts of terrorism are characterised by the terror they instil along with the violence they cause, such as explosions, destruction of public facilities, wreckage of railways and bridges, poisoning of potable water, propagation of infectious diseases and mass murders.

Terrorism knows no boundaries; no country is immune to its risks. And based on the 9/11 terrorist attacks, we can easily conclude how well organised and resourceful terrorists can be in our times.

Chemical risk

Biological risk

Radiation risk

Explosives

There is growing concern about the potential use of chemical, biological, radiological or explosive materials by terrorists against innocent civilians. Thus, it is necessary to understand the nature of the threats and to become acquainted with the protective measures that can be taken to anticipate the risks of terrorism.

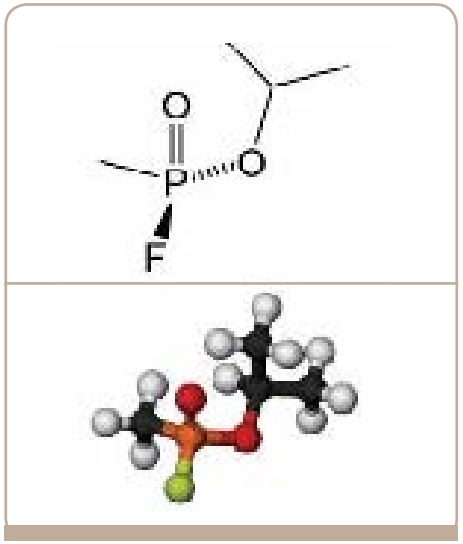
Threats of chemical attacks

A chemical agent is a toxic material, a hazardous gas, a liquid or a solid that can poison people and the environment. These materials can be disseminated by developed explosive means, by dispersion or by any other means used by terrorists.

Attacking by a chemical agent means the intentional release of a chemical agent with the aim of killing people, seriously harming them or hampering their movement. Most chemical agents are toxic upon inhalation, and might lead to injury if they come into contact with the eyes or skin. Terrorists can use many such chemical agents in their attacks, such as Sarin Gas, Sulphur Mustard, Hydrogen Cyanide and Phosgene. These materials target the nervous system, the skin and the respiratory system and have each their specific symptoms:

Sarin

Sarin is a colourless liquid or vapour, where injury is proportional to exposure. Long exposure to Sarin might lead to death, as witnessed in the attack carried out by "Aum Shinrikyo" group on the Tokyo subway in 1995 clearly shows.

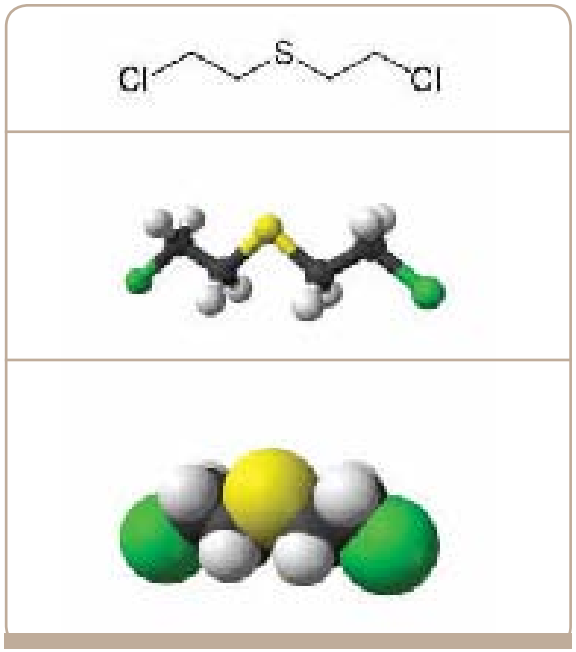


Characteristics and symptoms of Sarin exposure:

The symptoms of Sarin exposure include: blurred vision, heavy breathing, convulsion, sweating, vomiting, diarrhoea, unconsciousness, cramps and respiratory arrest leading to death. Its characteristics:

- Easily absorbed by the respiratory tract, skin and eyes.
- Paralyses the neurons in the nervous system, leading to watery eyes, salivation, urination, gasping, vomiting, muscle twitching, epileptic seizures, respiratory arrest and death.
- High exposure to nerve agents might be lethal within a short time (a few minutes only).

Sulphur Mustards



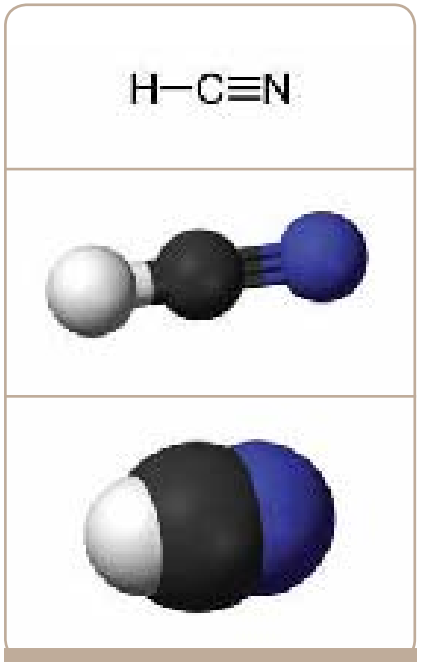
These include Mustard Gas, a chemical warfare agent that poisons the cells and is capable of causing big blisters on the exposed skin. Contrary to its name, this agent is not a gas but rather a liquid that turns into vapour.

Pure Sulphur Mustards are colourless and odourless and are viscous oily liquids at room temperature. But when used in an impure form, as a chemical warfare weapon, their colour is yellow/brown and they smell like mustard, garlic or turnip, hence their name. Sulphur Mustards harm the respiratory system when inhaled and cause vomiting and diarrhoea when swallowed, harming the eyes, mucous membranes, lungs, skin and organs producing blood. Their most dangerous effects are long-term since Mustard Gas causes cancer and genetic mutations for which no treatment has been discovered until now.

Characteristics and symptoms of Sulphur Mustard exposure:

- Mainly absorbed by the body through the skin.
- Causes skin rash, acute pain, blisters upon contact and severe allergy in the respiratory tract.
- Can be used to cause serious injuries and not to kill, but can be lethal if used in high dosage.

Hydrogen Cyanide

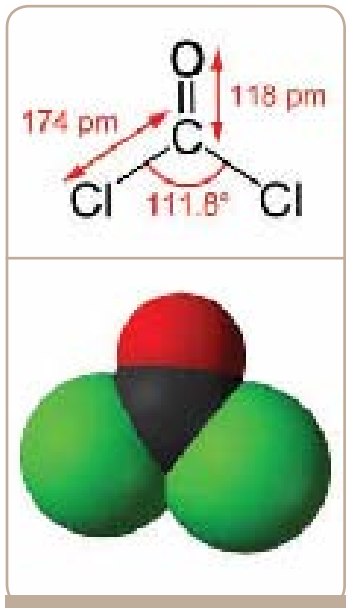


Commonly known as Prussic Acid throughout history, Hydrogen Cyanide is a chemical compound that takes the form of a highly toxic colourless liquid with a boiling point a bit above room temperature. Hydrocyanic acid can be either in gas or liquid form with a distinctive smell and very weak acidity. It burns in the air in a blue flame and melts in water and in alkaline solutions. A cyanide ion that enters the body by inhalation or through the digestive tract leads to cases of acute, or chronic, poisoning which might be lethal. If cyanide enters the blood circulation, haemoglobin turns into cyanhemoglobin, an ineffective form of transportation of oxygen taken in through the respiratory tract to the tissues. cyanide poisoning can be acute or chronic and cause- as the case may be- general weakness, headaches, migraines, dizziness, nausea, vomiting, blurred vision, low blood pressure, convulsions and coma, which might lead to death.

Characteristics and symptoms of Cyanide exposure:

- Affects the respiratory system and blood circulation, by preventing the blood from distributing oxygen to body tissues.
- Can be absorbed by inhalation or through the skin.
- Death might occur, within minutes, due to the lack of oxygen in case of exposure to high dosage of the agent.

Phosgene



It is a colourless, heavy, smelly and highly toxic gas that reacts with iron to turn into a reddish yellow toxic material. It severely damages the respiratory system, leading to suffocation. The Germans used it against the Allied Forces in 1915 during WWI.

Characteristics and symptoms of Phosgene exposure:

- Affects unprotected people, and leads to the irritation of the respiratory tract.
- In severe cases, the respiratory membranes swell up and the lungs fill with liquid to the point of emptying them from air.
- Exposure to suffocation agents leads to a dry throat, coughing, breathlessness, nausea and watery eyes.

Possible signs of a chemical attack

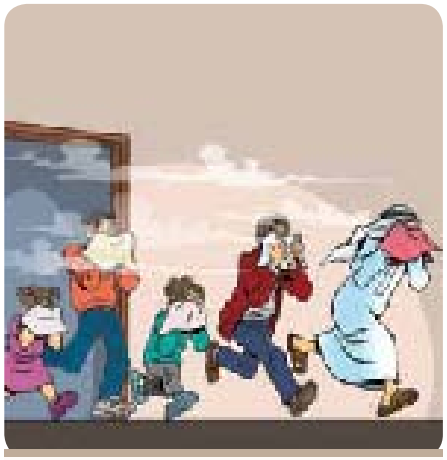
With the increasing tensions, the widespread disputes and the propagation of violence, wars and terrorism worldwide, few countries are now safe from their weapons, effects and tragedies. One of such threats is chemical warfare.

What are the signs of a chemical attack?

- Appearance of many pathological cases as well as symptoms and signs such as watery eyes, breathlessness, headaches and vomiting.
- Death of three people or more for no obvious reason.
- Discovery of a number of injured or dead birds, fish or small animals in the contaminated area.

How to act in case of a chemical agent attack?

If you are inside a building:
- Avoid the contaminated area and get out of there fast.
- Cover your mouth and nose with a piece of cloth that allows you to breathe (such as a wet towel).



If you are outside:
- Cover your mouth and nose with a handkerchief or a piece of cloth.
- Do not move in the direction of the wind that might be carrying hazardous chemical materials.
- Find a shelter or get into any building as fast as you can and try to get protection there.

If you are in your car:
- Get out of your car at once, and go home or get into any nearby building.
- If you cannot do so, close the doors and air vents of your car and, if possible, close the air conditioner vents using a tape and drive away from the contaminated area.
- Cover your mouth and nose with a piece of cloth.
- Listen to the radio to follow the latest developments and instructions issued by the authorities.

Exposure to a chemical agent

If you have watery eyes or irritated skin, or have trouble breathing, you may have been exposed to a chemical agent. In this case, you should do the following:

- Take off your clothes at once and put them in a bag to throw them away.
- Find a water source and wash yourself with plenty of water using soap if possible.
- Try to get medical attention as soon as possible.

If you suspect that someone has been exposed to a chemical agent:

- Keep your distance from the contaminated person and seek help.
- Do not try to give them first aid, unless it is safe to do so, because you might get contaminated yourself.

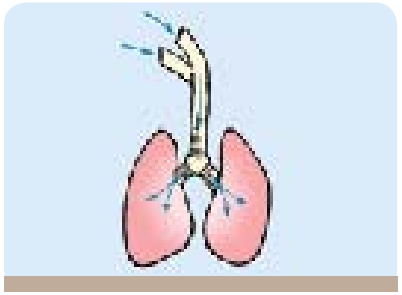
Threats of biological attacks

Biological warfare is the intentional use of germs, viruses or other organisms and their toxins that lead to epidemics among humans, animals and plants with the aim of killing or handicapping them. This type of war is also known as “bacterial” or “germ” war, and has general characteristics, the most important of which being:
- High epidemic tendency.
- Ability to resist natural conditions, such as temperature and drought.
- Adaptability and speed of propagation.
- Ability to cause great loss in a short time.
- Lack of immunity in the target.
- Suitability for field use.
- Ease of production and storage.

There are three main ways of disseminating infection using biological agents: Through the skin or wounds, through the digestive tract by means of contaminated food and drinks or through the air. The last method is considered the most efficient of all with the possibility of using airplanes, ships, bombs, cannons and rockets to disseminate these agents.

Contaminants, such as mosquitoes and rats, can also be used to transmit them. While some agents, such as smallpox, are contagious, others, like anthrax, are not.

Protection against biological warfare constitutes a true dilemma. Vaccination is the most important solution in this case. Another defensive measure consists of wearing protective gear and masks as well as storing food and water, increasing hygiene level, quarantining contaminated areas as well as decontaminating infected people, equipment and areas.



Categories and effects of biological agents

Bacterial agents:
Bacillus Anthracis
Bacteria are small unicellular organisms. Under special conditions, some types of bacteria, such as Bacillus Anthracis, the agent that causes Anthrax, can change into plaques resistant to extreme conditions, such as cold, heat, drought, chemicals and radiation.

Bacteria that cause diseases in humans can act in one of two ways:
- By entering the tissues of the human body.
- By producing toxins and toxic materials.

Viral agents: Sars, chickenpox
Viruses are microscopic organisms consisting of a protein coat containing a genetic material. They do not have their own metabolism and hence need living carriers, such as the cells of an infected human body, to reproduce. Viruses are capable of resisting antibiotics.

Biological toxins: Ricin
They are toxins produced by organisms. Ricin is extracted from castor oil plant seeds.

Other types of biological agents
Other biological agents do not fall within the general categories of the abovementioned agents, such as the causative agent of Q-Fever, which has common characteristics with bacteria and viruses but cannot nonetheless be classified as a virus or as a bacterium.

Possible signs of a biological attack

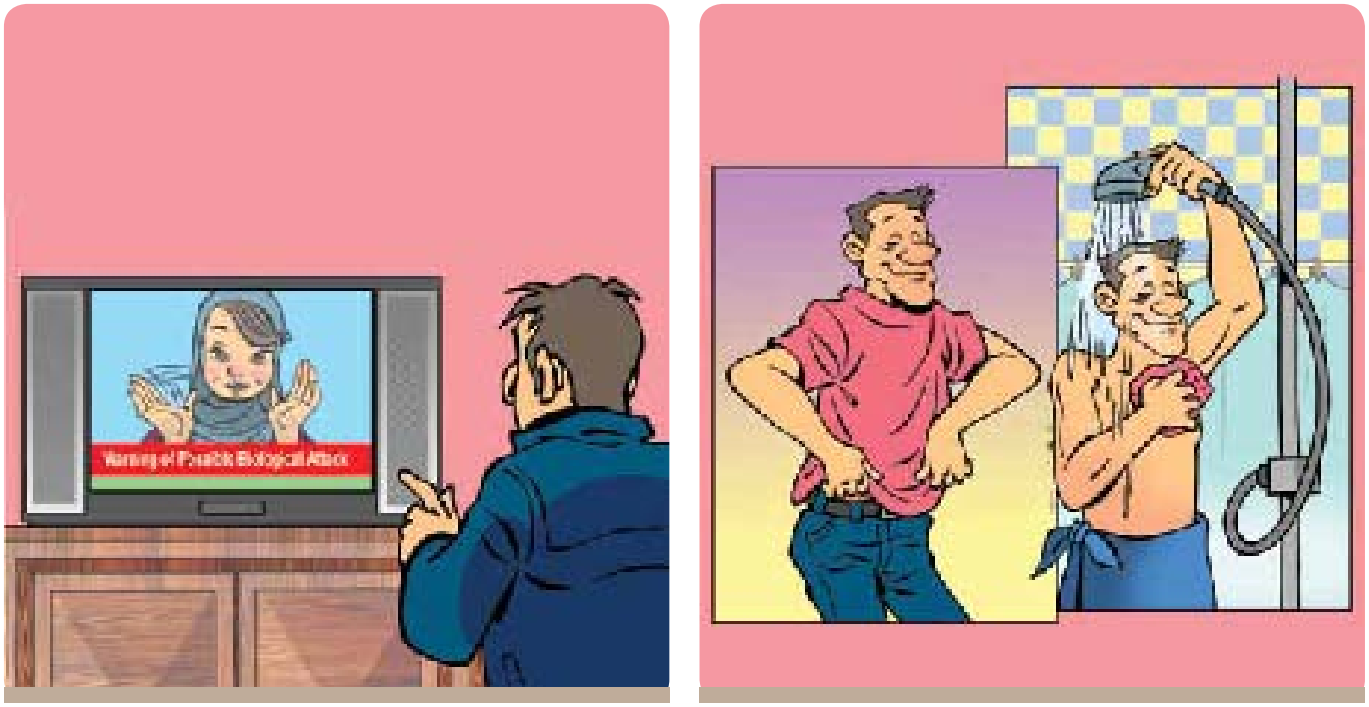
A biological agent attack may not be evident on the spot, due to the absence of an incubation period, whereas the pathological effects of the agent are not visible.

So what are the signs of a biological agent attack?

- Presence of an unfamiliar powder or gelatinous material, along with a suspicious-looking spraying device.
- Reports raised by local healthcare authorities on uncommon pathological cases within the community.
- Wave of patients in need of emergency healthcare.

What to do in case of a biological agent attack?

Victims of biological attack may not exhibit apparent symptoms, but, if you suspect that you, or someone else, have been exposed to such an attack, the following precautions should be taken:



- Quickly identify the area where you suspect that a biological agent is present and get away from it.
- Cover your nose and mouth with layers of cloth to filter the air while allowing you to breathe.
- Call 999.
- State your address and details in case there is a need to reach you immediately.
- Shower thoroughly with soap and water at the earliest chance and change into a clean set of clothes.

- In case you or any family member notice any pathological symptoms or develop a fever, try to contact a physician designated by authorities.

- If you think that someone has been exposed to a biological attack, take precautionary measures and contact the authorities for assistance.

- It is imperative to protect your respiratory system if you have to come near a person suspected to have been exposed to a biological agent.

- Maintain a safe distance from a contaminated person and avoid direct contact.
- Request medical assistance and observe the health authorities directives.

Anthrax

Anthrax is an acute disease caused by the bacterium Bacillus anthracis. Most forms of the disease are lethal, and it affects both humans and animals. There are effective vaccines against anthrax, and some forms of the disease respond well to antibiotic treatment.

Like many other members of the genus Bacillus, Bacillus anthracis can form dormant endospores (often referred to as "spores" for short) that are able to survive in harsh conditions for decades or even centuries. Such spores can be found on all continents, even Antarctica. When spores are inhaled, ingested, or come into contact with a skin lesion on a host, they may become reactivated and multiply rapidly.

Anthrax commonly infects wild and domesticated herbivorous mammals that ingest or inhale the spores while grazing. Ingestion is thought to be the most common route by which herbivores contract anthrax. Carnivores living in the same environment may become infected by consuming infected animals. Diseased animals can spread anthrax to humans, either by direct contact (e.g., inoculation of infected blood to broken skin) or by consumption of a diseased animal's flesh.
Anthrax spores can be produced in vitro and used as a biological weapon. Anthrax does not spread directly from one infected animal or person to another; it is spread by spores. These spores can be transported by clothing or shoes. The body of an animal that had active anthrax at the time of death can also be a source of anthrax spores.

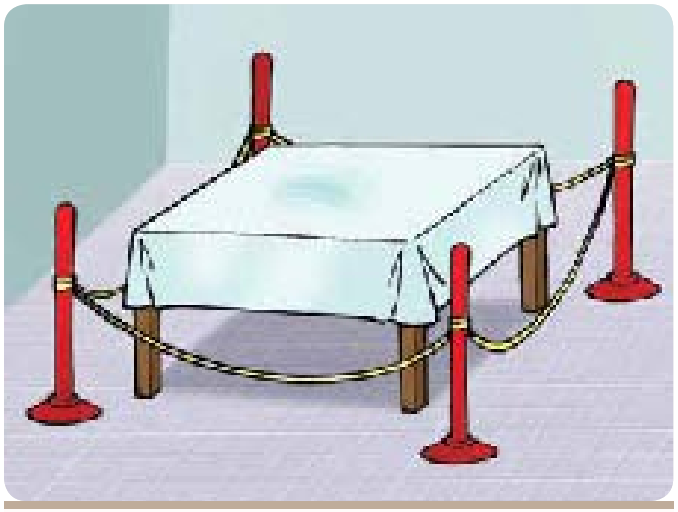
Anthrax in powder form isn't contagious, but it is still considered a threat to public safety. In the UAE, the competent authorities and the Ministry of Health have taken preventive and precautionary measures to deal with anthrax threats.

The public must remain calm and exercise caution in order to facilitate the process of identifying any potential signs of an anthrax attack.

Instructions on dealing with material suspected to contain anthrax

The following are instructions on how to deal with materials suspected to contain anthrax (such as a suspicious powdery substance):

- Do not come into direct contact with the substance. If the container is already open, immediately cover any spilled or uncovered substances with a piece of cloth, a plastic cover, paper or a box. Do not remove the lid.
- Do not inhale the substance or attempt to clean any spilled substance.
- Shut down any fans or localised air-conditioning units in the contaminated area or room.
- Leave the room and shut the door. Prevent others from entering the affected area.
- Head to the nearest washroom and wash your hands and any part of your skin that was exposed to the suspicious substance with soap and water.
- Remove all your clothes and shower with soap and water. Do not use detergents or disinfectants on your skin. Discard of your clothes in a plastic bag or wash them with detergent.
- Prepare a list of the names and contact numbers of all the people that were present in the area where the suspected substance was present and submit the list to the police for investigation purposes.



Cordon off the area and place a cover over the suspected substance.

Thoroughly clean body parts that were exposed to the substance.

Decontamination procedures for contaminated individuals

In case of an incident involving hazardous materials such as chemical, biological or radioactive substances, the relevant authority sets up special installations on site to decontaminate any potentially contaminated people. This process is crucial for saving lives and preventing the spread of contamination. The integrated decontamination process includes the following six steps… Nonetheless, it is important to remember that discarding of the victim's clothes can help get rid of up to 80 per cent of the contaminating substance.

Step 1/ Gather your personal belongings

- Place your personal belongings in a small bag.
- Write your national register number on the bag with a marker.
- Place any small or important items in the personal effects bag and hand the bag to Civil Defence or the relevant authority.
- Place any garbage in a separate bag and close it tight then proceed to the showering unit.

Step 2/ Remove your clothes

- Remove your clothes and the remaining personal effects and place them in a trash bag.
- Close the bag and seal it tight with a piece of threat or rope.
- Discard of the trash bag by placing it in the trash container.

Step 3/ Shower

- Use a sponge.
- Lean forward and wash your hair first.
- Soak yourself in water and use the non-ionising shower liquid that is provided to you.
- Use the sponge to rub all your body with the shower liquid with special focus on your armpits and groin.
- Dispose of the contaminated sponge in the trash bin.
- Shower completely for two minutes to wash off the contaminated liquid.

Step 4/ Dry off
- Use a towel to dry off completely.
- Discard of the contaminated towel in the trash bin.

Step 5/ Examination
- Lift your arms in a T to allow paramedics to test for contamination.
- If the individual fails examination, he/she must repeat step 3 (showering)

Step 6/ Put on clothes
- Put on a bathrobe and a pair of shoes.
- Proceed to the temporary quarantine area and await further instructions.

On-site protection

Get inside your house and remain there while you follow up on news.

Chemical, biological or radioactive pollutants can be accidentally or intentionally released into the environment. In such an occurrence, you may be asked to observe safety procedures on site. This means you must remain in your home and take the necessary precautionary measures to ensure your protection and the protection of your family.

On-site safety is a simple measure that consists of the following:

• Shutting windows, doors and any other openings.
• Trying to limit the leakage of damaging substances into the house or office.

Essential supplies

The following items are used for on-site safety measures and are placed in a large room with sliding windows or doors. They are divided into two categories:

Essential supplies

- One roll of tape (minimum 48 mm width).
- Sufficient black trash bags (to be cut up and used to cover windows, air conditioners and vents in the room).
- A pair of scissors.
- Battery operated radio and spare batteries.

Optional items

- Flashlight and spare batteries.
- Bottled water.
- Non-perishable food items (a minimum of one meal).
- Mobile telephone (in case no landline telephone is available in the safe room).

It is always advisable to use any materials that are easily found around your house to implement the on-site safety measures.

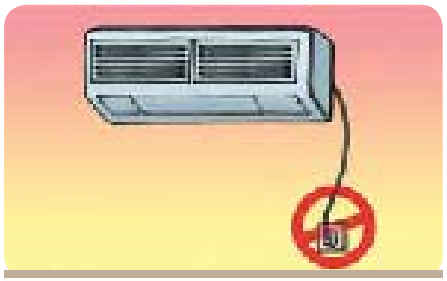
How to follow up on on-site protection?

The relevant authorities issue instructions to the public to resort to on-site protection measures through all or one of the following methods:

1. Sounding the “Important Message” siren through the public warning system, followed by instructions via telecommunication media (TV, radio, text messages, social media).
2. Direct door-to-door notifications.

How to safely protect your house?

1. When on-site instructions are issued, remain calm and gather all your family members inside your home.
2. Close all doors, windows and openings.



3. Shut down all air-conditioning units that draw air from the outside.
4. Go into the room with the least number of vents. It is preferable that the room contains a toilet and a water source.
5. If duct tape is available, use it to cover any visible holes around windows, doors and air-conditioning vents. Use wet towels to cover the bottom of doors.

6. If time allows, you can use trash bags or plastic covers to cover any holes or cracks, increasing your level of protection.
7. Follow the news for more information or instructions from official sources.
8. Do not leave the room unless your are instructed by official authorities to do so. At this point only, you can remove any covers and open windows to allow air into your house.

On-site protection at the workplace or at school

On-site protection measures at the workplace or at school are mostly the same as those prescribed for in house protection measures. However, due to the complex structure of some buildings and the large number of people present in some, previous plans are devised to predetermine the room/rooms that will be used for on-site protection and to determine the roles and responsibilities of the persons involved in order to ensure coordination and smooth procedures. (A sample on-site protection instructions for buildings is available on the NCEMA website at www.ncema.gov.ae).

Essential steps:

1. Close all windows and doors and shut down equipment and lights to reduce heat generation.
2. Shut down all air-conditioning equipment that draws air from the outside.
3. Proceed to the predetermined protection room/rooms.
4. Direct non-tenants or residents to the protection room/rooms.
5. Seal any visible openings with duct tape and plastic covers.
6. Listen closely to the radio or TV for further information and instructions.
7. When on-site protection is over, open windows and doors and put air-conditioning back on.

In-car protection

If you are close to your domicile, office or to any public building, head directly to it in your car. Get inside the building and follow on-site safety instructions. If that isn't possible, observe the following steps:

1. Close windows and vents if possible. Seal air-conditioning vents with tape. Move the car away from the contaminated area.
2. Cover your mouth and nose with a piece of cloth.
3. Listen to the radio for any new developments and instructions.

On the street

Head to the nearest building or look for a transportation vehicle to get away from the contaminated area. In case this isn't possible:

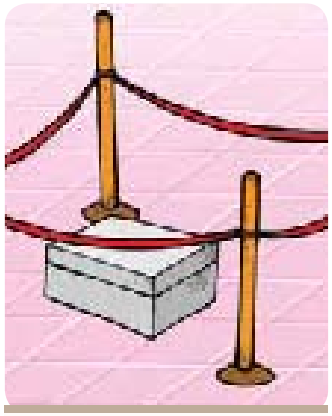
1. Do not walk downwind.
2. Cover your mouth and nose with a piece of cloth.

N.B. Remember that on-site protection instructions are usually issued for several hours, not days. It is possible that the room used for protection runs low on oxygen. If you are exposed to a hazardous substance, report to the relevant authorities for immediate medical care.

Bomb attacks and booby-trapped parcels

Bomb attacks are increasingly occurring in various places around the world and no one country is completely safe. Bomb attacks can cause major fatalities as well as serious damage to property and infrastructure. Caution and strict observance of safety measures and instructions can help in reducing fatalities and damages.

In case you suspect an object or you find an unexploded bomb



- Move away from the location and do not touch or move the suspicious object.

- Warn others in your area.

- Immediately call police.
- Describe the suspicious object: shape, size, colour, location.

Evacuation of a building in case a bomb or a suspicious object:

1. Leave the building calmly and in a orderly manner.
2. Avoid using elevators.
3. Follow the instructions of the guards or the floor officer.
4. Take your suitcase with you and do not leave any personal effects unattended.
5. Move to the gathering point (at least 500 metres from the building) for the headcount.
6. Upon leaving the building, be aware of emergency vehicles that arrive at the scene.

If you receive a bomb threat call…

Do not panic… remain calm.
Allow the caller to speak for as long as possible while the police track the call.

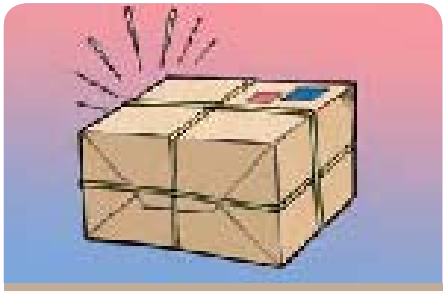
- It is essential to observe the following:
  1. The caller's voice (tone, male or female, child or adult).
  2. The language and the accent (local or foreign).
  3. Speaking manner (quick, intense, emotional, angry).
  4. Background noises or sounds (traffic, music, announcements, screaming).
  5. The person to whom you are required to transfer the message.

- Do not try to mock or antagonise the caller in any way.
- Be polite and remain calm.
- Do not spread rumours.
- Ask another person to call the police if you haven't done so yourself.

- An officer who receives such a call will deal with it seriously and will immediately try to determine the following:
  1. The exact location and the shape of the bomb.
  2. Detonation time and who will execute it.
  3. The amount and type of the explosive material.
  4. The possible causes of such behaviour.

If you receive a booby-trapped parcel or letter

Most booby-trapped parcels/letters that are delivered through the mail allow for a reasonable processing time. In case you receive a suspicious letter/parcel, do not attempt to open it since most explosives are designed to detonate when the outer cover or lid is removed or torn up.



- In case you are not sure of the source of the letter/parcel and you have reason to suspect that it contains a bomb, treat it as a bomb and notify the police.
- Place the letter/parcel in a corner and away from windows.

- Evacuate the room and, if necessary, evacuate the building and leave windows and doors open. This allows for the explosion to spread out and reduce risks of projectile glass shrapnel.
- Instruct building, security personnel and the evacuated individuals not to touch any suspicious objects.

- In case an explosion goes off and the evacuation process is affected, issue instructions to redirect people to alternative and safer exits.
- Listen to the radio or watch television for further instructions from official sources.

In case you are injured during an explosion…

- Slowly move away from the affected area if you are able to evacuate.
- Give a sign to emergency responders to allow them to locate you if you are unable to evacuate.
- Move only if necessary to avoid exacerbating your injury. Specialised medical personnel will provide you with care and remove you from the location.

In case you are trapped inside a building…

- Stay where you are and protect your head and face from glass shrapnel or falling objects.
- Stay away from any objects that are not firmly fixed.
- Lean only on walls that have no glass windows or hanging shelves.
- When possible, crouch under a solid and sturdy table.

In case you are trapped under rubble…

- Use a flashlight if possible to signal your position to rescue workers.
- Avoid any unnecessary movement.
- Move your fingers and toes from time to time to ensure the circulation of blood and to prevent thrombosis.
- Cover your mouth and nose with a piece of cloth to avoid dust inhalation.
- Bang on a pipe or a wall to help rescuers pinpoint your location.
- Whistle to alert rescuers to your location.
- Yell, but only as a last resort. Yelling could deplete your energy and cause you to inhale a dangerous amount of dust and fumes.

In case you are away from the explosion…

- Do not get near the affected area.
- Remain calm.
- Do not call 999 unless your have a real emergency.
- Listen to the radio and watch television for the latest developments and instructions.

In case of evacuation due to an explosion…

Remember to fully observe instructions and directives.

What you should do:

- Remain calm. Do not panic.
- In case a fire alarm is sounded in your building, you must proceed to normal evacuation.
- Observe instructions and directives issued by the building management.
- Take only what you need (medicines and personal identification documents). Do not take too many personal effects in your luggage.
- Walk fast, do not run. Help children, elderly people and people with special needs.
- Evacuate streets for emergency vehicles.
- Do a headcount of all the people at the gathering point.
- Call a relative or a friend as soon as possible to reassure them that you are safe.

What you should not do

- Do not use elevators; you may get stuck.
- Do not randomly open fire exits.
- Do not use random cordless or mobile telephones.
- Do not operate any electrical appliances.
- Do not spread rumours.
- Do not attempt to return into the building.

After the explosion

Beware of the following hazards:

- Damaged building, collapsed walls, leaning posts and surfaces.
- Holes in the ground and sharp-edged rubble.
- Scattered glass and glass shrapnel.
- Fires due to overheating.
- Toxic fumes.
- Water and gas leaks due to broken utility lines.
- Uncovered power lines.
- Secondary explosives.

Offering assistance:

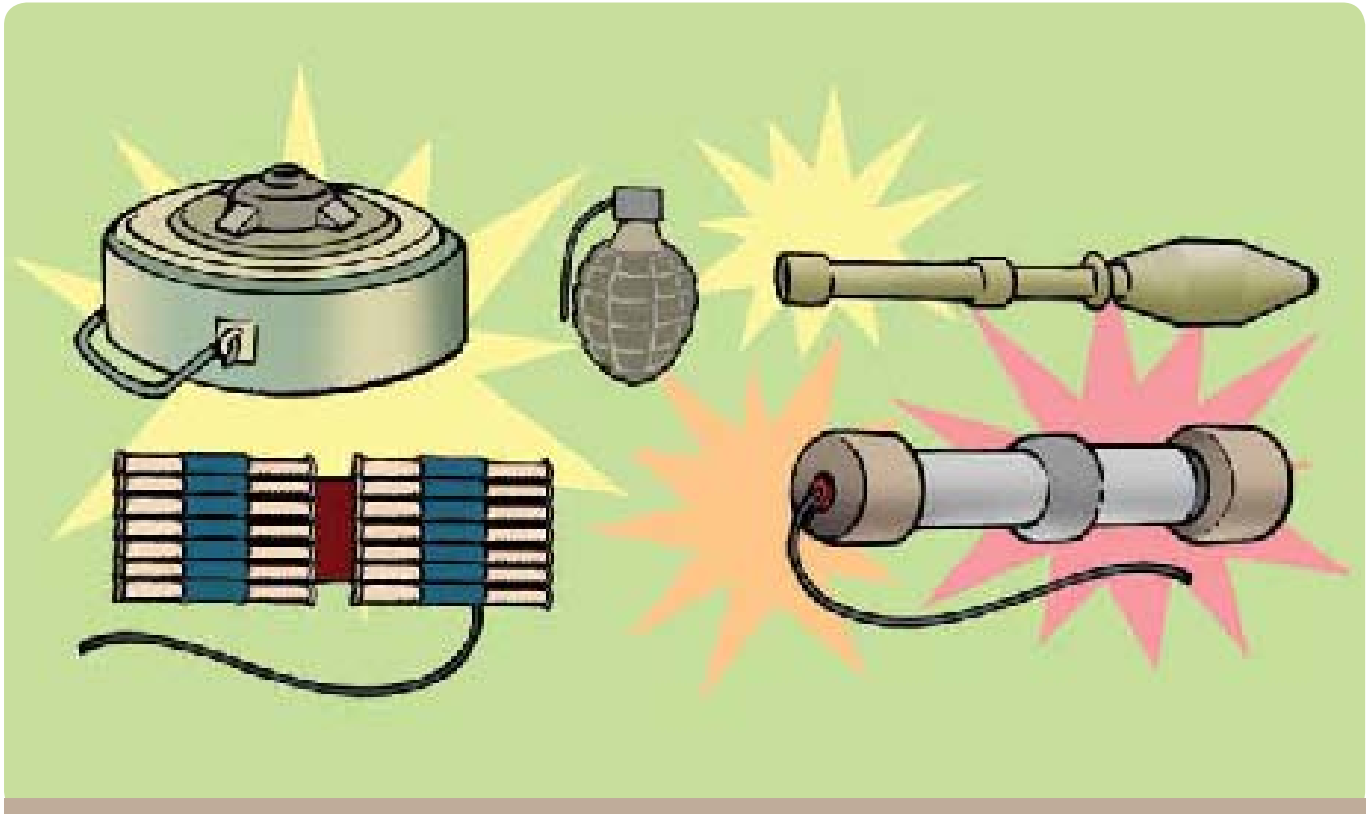
- In case you are trained in first-aid, try to keep any severely injured people calm until response teams arrive on the ground.
- In case you are not trained, leave the danger zone. Recognise the location of any injured people and notify the emergency response personnel.
- Do not go into a structurally damaged building to attend to or rescue victims.
- Ensure your own safety before helping others.

Dirty bomb threats

Conventional explosives such as TNT are used in dirty bombs combined with a readily available radioactive material such as Cesium 137. Once detonated, it contaminates the area around the explosion with radioactive material.

Radiation is present in every aspect of our lives. It occurs naturally in the ground or it can reach us from space. It can also be found in natural form in drinking water, in the soil or in construction material.

On the other hand, radiation can also be generated by man, such as X-Rays, and in atomic power plants or through smoke detectors.



Types of radiation

Radiation is mainly classified in two types:

1. Ionising radiation (e.g. x-rays, gamma rays), cosmic rays, Alpha particles and Beta particles.
2. Non-ionising radiation such as electromagnetic rays, radio waves, radar waves, microwaves, infrared waves, ultraviolet rays and visible light.

The three main types of ionising radiation that are released from a dirty bomb are:

Alpha Ray

Alpha rays can be intercepted with a piece of paper or by a human body. But they can be seriously harmful in case their fumes, which contain Alpha particles, are inhaled or absorbed through open wounds.

Beta Ray

Beta rays cannot be intercepted with paper, but their propagation can be stopped with a piece of wood or aluminium. They can cause serious damage if they penetrate the body through the skin.

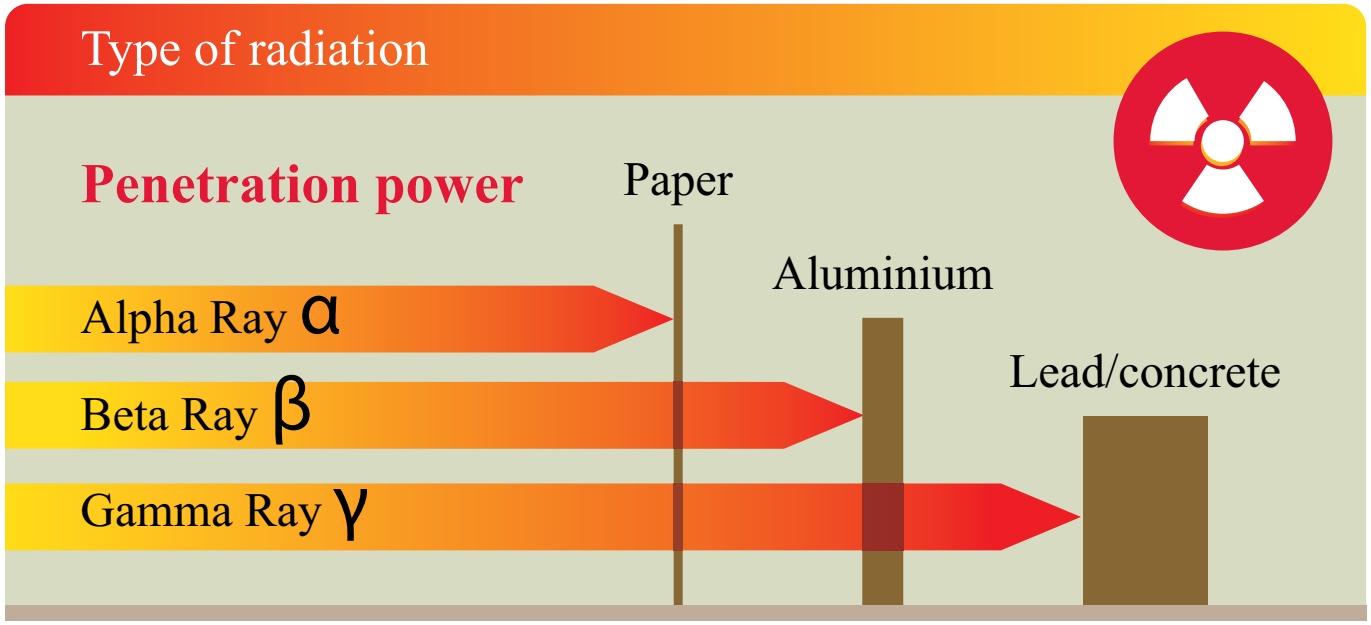
Beta rays are significantly more penetrating than Alpha rays. Some Beta ray particles can penetrate and damage skin. They are seriously harmful if fumes or substances that release Beta rays are inhaled. Skin may be damaged if it comes in contact with high concentrations of Beta pollutants for an extended period of time.

Gamma Ray

It is a long-range electromagnetic radiation that can be potentially damaging to body cells. Gamma rays are the most dangerous of radiations and they are deeply penetrating. It can travel for a long distance in the air and penetrate several inches deep inside human tissue. It is the result of nuclear reactions that often occur in space or in radioactive elements such as uranium.

Radiation is released into the void and the air at the speed of light. It is more powerful and more penetrating than ultra-violet and X-rays and its wavelength is significantly short. If it weren't for the Earth's atmosphere, which absorbs and deflects such radiation, life on the surface of our planet would have gone extinct.

Gamma radiation can be stopped with concrete and heavily dense materials such as lead. Most materials and clothes don't provide protection for the skin. This type of radiation is used in the medical and the industrial fields but in very small quantities. It destroys cancer cells.



Symptoms of exposure to radiation

The following are symptoms of exposure to Gamma rays:

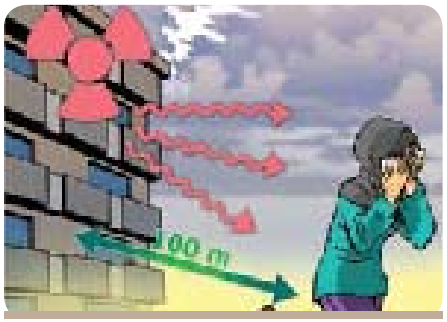
- Damage to body cells.
- The body is capable of replacing a small amount of damaged cells without there being any visible symptoms.
- In case a large amount of cells were damaged, our body organs stop functioning properly and the victim will exhibit symptoms of radiation that include nausea, vomiting, skin swelling and burns.
- Sometimes, cells survive but are badly damaged when exposed to radiation. This can lead to an accelerated reproduction of abnormal cells, which is known as a cancerous growth.
- Signs and symptoms of abnormal cell growth may remain invisible for several years.
- Injuries include burns and shrapnel cuts.
- A dirty bomb explosion sounds and looks like a conventional bomb explosion.
- Victims may suffer from explosion-related injuries such as burns and cuts.
- Specialised equipment is required to test for radioactive substances in a dirty bomb explosion. Otherwise, it is nearly impossible to distinguish a dirty bomb explosion from a conventional bomb explosion.

In case of a dirty bomb attack…

In case your are outside your home and an explosion or radiation occurs near you:

- Cover your mouth and nose.
- Move away from the immediate area and to a 100-metre distance upwind and to an elevated area.
- Change direction if you are moving downwind.

Stay home if your building is stable...



If an explosion or radiation occurs near your building:

- Check if your building is damaged.
- If the building is stable, stay where you are and close all doors and windows and shut down all air-conditioning systems.
- Otherwise, damaged buildings must be evacuated.
- Cover your mouth and nose and get away to a 100-metre distance from the direction of the wind and to an elevated and safe area.

Stay at home if the building is stable

If there was an explosion, or release of radiation near your building:

- Check if the building was affected.
- If the building is stable, stay where you are. Close all windows and doors, turn off the air conditioner and/or other ventilation systems.
- Otherwise, you must vacate the building.
- Cover your nose and mouth and walk away at least 100 metres, from the direction of the wind, and to an elevated area of the danger zone.

Building evacuation

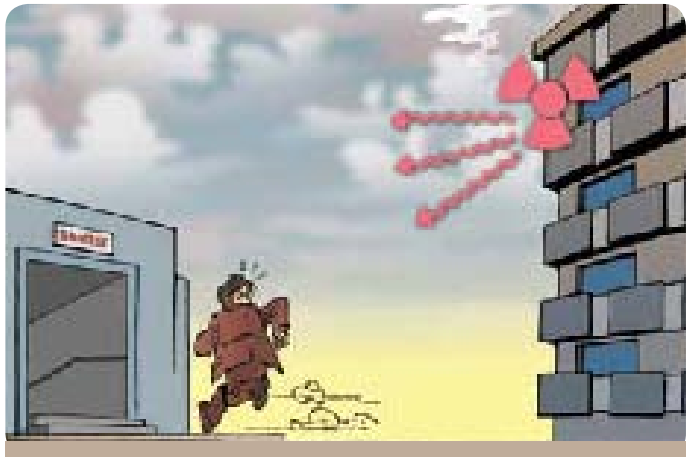
In case of a radioactive explosion or leakage inside your building:

- Cover your mouth and nose.
- Leave the building immediately.
- If you weren't exposed to radiation, move a 100 metres away upwind and to a safe and elevated area.
- If you were exposed to radiation, wait until you are decontaminated by emergency personnel.

Reducing exposure to radiation

In order to minimise exposure to radiation, think about taking shelter, distance and time:

Taking shelter: Look for a shelter in other buildings that can protect you from radiation.
Distance: The farther you get away from the explosion and the radiation, the less prone you are to exposure.
Time: Minimise the time spent in the radioactive area.



If you think you were exposed to radiation…

1. If utilities are available, remove your clothes, place them in a bag and seal it. Keeping contaminated clothes will allow for radiation testing.
2. Take a shower to get rid of any dust laden with radioactive substances.
3. Seek immediate medical care.

N.B. Listen to local radio or watch local television channels for instructions from official sources regarding radiation leakage. You will be informed of specialised centres where you could report radiation or get tested for radiation as well as any safety measures.

Public transportation safety

Security personnel are deployed in public transportation spaces, on airplanes, buses and metros. Security officers can be easily spotted by their special badges.

Public transport security officers help in the following situations:

- Ensuring security and careful monitoring of any terrorist threats.
- Circulating patrols at metro and bus stations.
- Conducting random inspection of luggage and packages for suspicious material.
- Please cooperate with public transport security officers to ensure people's safety.

In case you notice a suspicious individual or object…

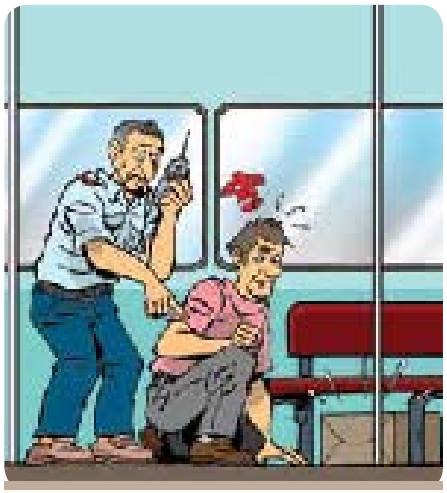
- Call 999 or notify the relevant security personnel.
- Call 999 or station personnel in case of an injury or a life-threatening situation.
- Do not put yourself or others in harm's way.
- Remain calm and think before you take any action.

P.S. Do not leave your personal belongings unattended.

Evacuation of buses and trains

- Follow instructions issued by official sources.
- In case of a problem on the train or the bus, do not panic.
- Listen carefully to announcements and follow the instructions of personnel.
- Care for young and elderly passengers.
- Do not try to force the door open or to jump off the train or the bus.

- Follow the instructions at emergency exits on both ends of the train to safely open the doors and exit the vehicle.
- During evacuation, electric power will be shut down in passageways to ensure safety. Emergency air-conditioning and lighting will be provided on trains and inside tunnels.



- Alert the train/bus attendant in case you notice a suspicious material.
- Do not panic if you notice any suspicious material in the vehicle.
- Notify the train/bus attendant. He/she will assess the situation and direct passengers to another train/bus if need be.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