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Preparation and Actions for Other Disasters

Earthquakes are not the only disasters that can strike Tokyo. Many various risks can be assumed, ranging from natural disasters such as landslides, lightning strikes, tornadoes, heavy snow, and volcanic eruptions, to human threats such as terrorist and armed attacks, as well as infectious diseases. In this chapter, we have compiled knowledge on the various risks that lurk in Tokyo and measures to deal with them. Learn about them now so you can respond calmly, which could save your life.

Voice from experience

Although a lot of masks and other supplies were delivered to the evacuation center, I should have stocked up on dust goggles at home.

(70s, Eruption of Mt. Kirishima (Shinmoedake))

Voice from experience

Even though it was midsummer, the temperature suddenly dropped before the tornado, and I remember feeling coolness and stillness, as if the air had stopped.

(50s, July 2009 Tatebayashi Tornado)



Voice from experience

During heavy snow, a huge traffic jam was caused by abandoned cars that couldn't move.

(50s, Dec. 2010/Jan. 2011 Heavy Snow in the San'in Region)

Source: Edited and created based on Cabinet Office, "One Day Before Project", <https://www.bousai.go.jp/kyoiku/keigen/ichinitimae/index.html>

Sediment Disasters

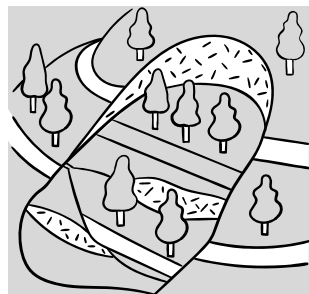
Signs of an impending sediment disaster

If you notice any of the following signs, evacuate quickly.



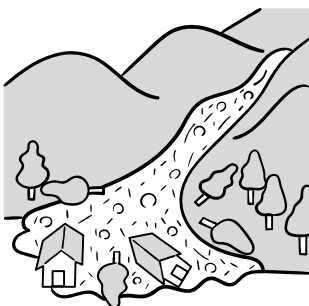
Landslip

Signs are cracks on cliffs, small stones falling down, water welling up on cliffs, spring water stopping or becoming cloudy or muddy, being able to hear the earth rumbling, etc.



Landslide

Signs are cracks and sinkholes in the earth, the ground developing clefts and becoming uneven, water spurting from cliffs and slopes, water in wells and streams becoming cloudy or muddy, sounds of rumbling from the earth or mountain, trees leaning, etc.



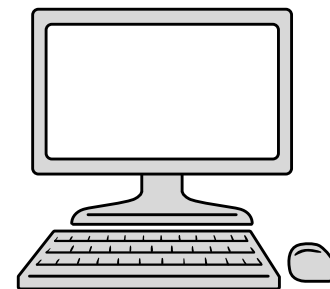
Mudslide

Signs are sounds of rumbling from the mountain, river water suddenly becoming cloudy or muddy and containing driftwood, an unpleasant earthy smell, the river level becoming lower despite continuous rainfall, the sound of trees being torn and stones bumping into each other, etc.

Protect yourself from a sediment disaster

Know the sediment disaster hazard areas

On the Sediment Disaster Hazard Area Map that is available at the Tokyo Metropolitan Government Bureau of Construction's website, sediment disaster hazard areas can be searched by region. A "sediment disaster hazard area" is an area where it is recognized that there is a risk of harm to the lives of residents in the event of a landslide, and where a warning and evacuation system should be specifically developed to prevent sediment disasters. Confirm in advance hazard areas in your neighborhood.



Sediment Disaster Hazard Area Map

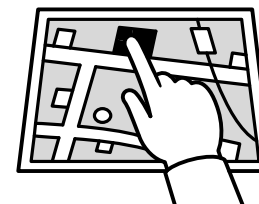
Prepare an emergency bag

Prepare a hazard map, a map of your evacuation area, and an emergency bag. If you feel in danger, change into clothes that are easy to move around in, and be ready to evacuate any time. When you evacuate, keep your baggage to a minimum so that you can keep your hands free.



Confirm your evacuation area

Regularly talk with your family about your designated evacuation area and how to contact each other, and confirm your evacuation routes.



⚡ Lightning

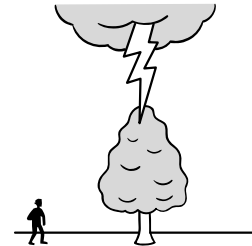


Lightning can be life threatening

Lightning can be life threatening. Although high places and tall, protruding objects attract lightning, more than half of those killed by lightning were actually in open areas such as a golf course, or under a tree taking shelter from the rain. If you hear thunder or see thunderclouds approaching, quickly move to a safe place, such as a reinforced concrete building, car, bus, or train.

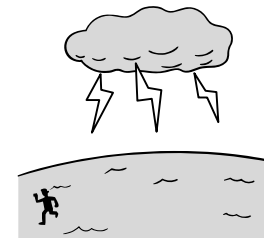
Areas where you must be cautious

Open areas such as a playing field, golf course, outdoor swimming pool, riverbank, beach, and on the sea can be dangerous. You also need to be on alert when you are in a high place, such as at the top of a mountain or ridge.



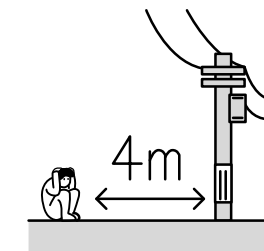
Stay away from tall objects like trees

Lightning often strikes tall objects like trees and tall, protruding objects. Therefore, when you are close to a tree, especially, keep at least 2 meters away from the tree (trunk, branches and leaves).



In an open space

It is dangerous to be in an open space like a playing field, because lightning could directly strike you. Quickly move to a safe place.



If there's no safe place nearby

If you cannot find a safe place nearby, take shelter at least 4 meters away from any tall object such as a utility pole. Maintain a low posture and make sure that nothing in your possession protrudes into the air.

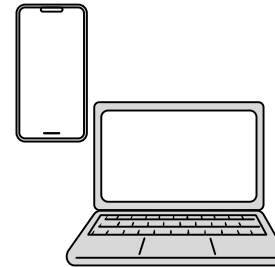
Tornadoes



Tornadoes can occur anywhere in Japan

Even in Japan, damage inflicted by tornadoes is occurring frequently in recent years. Although tornadoes occur at any time of year, more tornadoes are seen particularly from summer to autumn, when cumulonimbus clouds are most likely to develop. When a tornado forms, strong gusts of wind blow, pick up debris from the ground, including materials from buildings and signs, and turn these objects into dangerous projectiles, causing serious damage at times. To avoid danger, enter a sturdy building such as a reinforced concrete building or an underground facility and wait for the storm to pass.

Protect yourself when a tornado strikes



Check the areas where tornadoes are forecast

You can check areas where there is the probability of strong wind gusts, including tornadoes, ahead of time by viewing the Radar and Nowcasts weather map on the Japan Meteorological Agency's website and clicking on "Tornado."

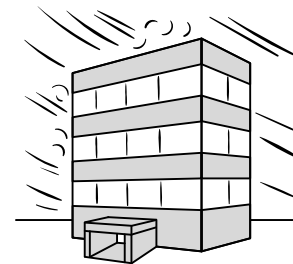


What is the Tornado Radar and Nowcasts?



If you are inside

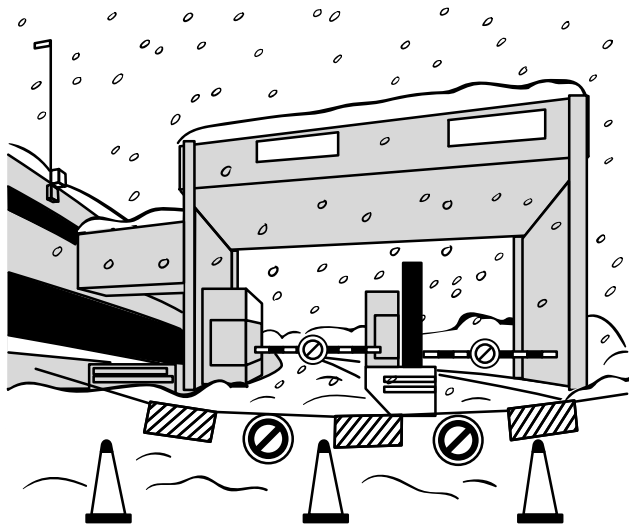
In a detached home, move to a room on the first floor that has few windows in order to avoid broken window glass and projectiles, or hide in the bathtub. Close the storm shutters and curtains, move away from windows, and wait for the tornado to pass.



If you are outside

Move inside a sturdy building or underground facility to avoid wind gusts and objects flying through the air. In the event you are not near any of these structures, take cover or hide in a ditch, and wait for the tornado to pass.

Heavy Snow



Heavy snow can paralyze a city

When snowfall is heavy, public transportation may shut down, expressways may close, and there is even the possibility that ordinary roads will become impassable. When heavy snow is forecast, you should return home as soon as possible and avoid going out again. Heavy snow in 2018 caused large-scale strandings in areas such as the Yamate Tunnel on the Metropolitan Expressway. 230 km of the Expressway was closed, more than 70% of its total length, and it took 97 hours for it to be completely restored. Due to the effects of global warming, in recent years heavy snowfall sometimes occurs over a short period of time, so using winter tires will not necessarily be safe. It is necessary to be mentally prepared and ready with a shovel for shoveling snow.

Protect yourself from heavy snow

Avoid commuting to work or school

If heavy snow is forecasted, stockpile enough food so that you will not need to leave home, and make preparations to stay warm without electricity in case of a power failure. Also, be sure to return home as soon as possible if you are out.



Be careful not to slip

When it snows and afterwards (especially the morning after heavy snow), roads become extremely slippery. If you go outside, put on slip resistant footwear such as snow boots, and be very careful as you walk. Do not ride bicycles or use cars.



If you usually use a car

Refrain from using your car as much as possible. If you must drive, change your tires to winter tires for use on snowy and icy roads, and prepare a shovel, boots, blanket, and emergency food. Be sure to maintain at least double the distance between vehicles that you normally would, and do not brake or swerve suddenly.



Points to be aware of when shoveling or removing snow

When shoveling snow or removing it from your roof, use equipment such as safety lines and helmets, put on slip resistant footwear, and always work in a group of two or more. Since snow that has accumulated on the roof loosens as it melts on sunny days, take care to avoid snow that slides off the roof.

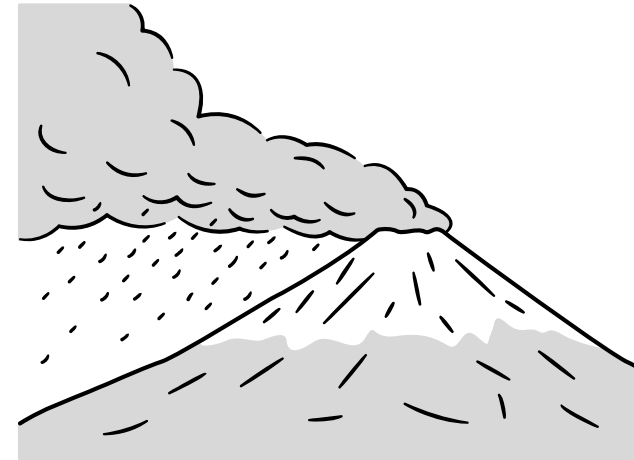


Volcanic Eruptions



There are 21 active volcanoes in Tokyo

Tokyo has 21 active volcanoes on its islands such as Izu Oshima and Miyakejima, and people are living on eight of those volcanic islands (Izu Oshima, Toshima, Niijima, Kozushima, Miyakejima, Mikurajima, Hachijojima, Aogashima). In recent years, eruptions on Izu Oshima in 1986 and Miyakejima in 2000 led to the evacuation of all the residents from the islands. Since November 2013, a magma eruptions have repeatedly occurred on Nishinoshima island of the Ogasawara islands, and the lava flow has increased the island's area.



Effects of a Mt. Fuji eruption

If Mt. Fuji erupts as it did in 1707, volcanic ash will fall on a wide area of the Kanto region, and it is estimated that up to 10 centimeters of ash will fall on some areas of Tokyo. Ash will not only affect the transportation system, lifelines, and the agriculture, forestry, and fisheries industries, but could also affect health. If Mt. Fuji erupts, confirm the ash fallout forecasts on the Meteorological Agency website and make preparations in advance if you are in an area that will have a large volume of ash fallout.

Protect yourself from a volcanic eruption

Don't overlook warnings of eruption

When the Meteorological Agency announces a volcanic warning, restrictions on mountain entry, evacuation orders and evacuation of the elderly, etc. will be issued. Follow the instructions. If you feel even slightly endangered, evacuate.



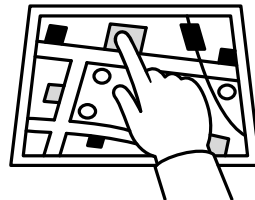
Volcanic alert level

The volcanic alert levels in volcanic forecasts/warnings are classified from 1 to 5 according to the degree of volcanic activity. Take actions suitable to the level.

Level 5	Evacuate from dangerous residential areas
Level 4	Evacuate elderly people and other people who require special care in residential areas that require vigilance, and prepare for evacuation in residential areas
Level 3	Mountain climbing and entering mountains is prohibited, and entering danger zones near residential areas is restricted
Level 2	Entering the area around the crater is prohibited
Level 1	Be aware that it is an active volcano, follow local government regulations, and do not enter dangerous areas

Confirm the dangerous areas on the disaster prevention map

It is important that you confirm the dangerous areas and evacuation centers beforehand using disaster prevention maps (which show dangerous spots, evacuation routes, evacuation centers, etc.) made public by the municipality or others.



Source: Japan Meteorological Agency "Explanation of Volcanic Alert Levels" from the Japan Meteorological Agency website

Prepare food and items for a disaster

When a volcano erupts, the ashes may affect logistics and lifelines. Prepare drinking water, food, flashlights, extra fuel, and other necessities. It is also better if you prepare helmets, masks and goggles as protection against dust.



Check the designated evacuation area beforehand

When an evacuation order or evacuation of the elderly, etc. is issued due to a volcanic eruption, quickly evacuate to the municipal government's designated evacuation area. Confirm in advance the location of the designated evacuation area nearest to you.



If an eruption occurs

Put on protective headwear such as a helmet, and while taking steps to prevent yourself from inhaling volcanic ash and gases such as holding a towel to your mouth, quickly evacuate to a safe place such as a shelter.

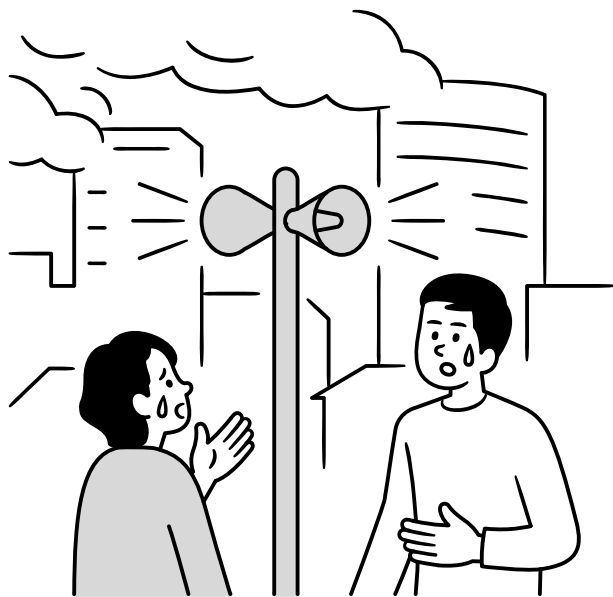


Be careful of volcanic ash

When the volcano erupts, volcanic ash will fall along with large and small cinders. Breathing in ash will affect the respiratory system causing coughing or breathing difficulties, and will also cause eyes to become itchy, painful or bloodshot, so protect yourself with dust masks and goggles. Also, take care as there is a risk of traffic hazards such as skidding accidents due to poor visibility and damp conditions due to volcanic ash.

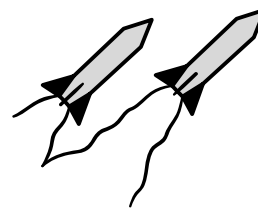


Terrorist and Armed Attacks



Danger of terrorist and armed attacks

As Tokyo is the center of government and economy, it could become the target of terrorist and armed attacks. The Act Concerning the Measures for Protection of the People in Armed Attack Situations, etc. (“Civil Protection Act,” Act No. 112 of 2004) was enacted with the aim of protecting the lives and assets of the citizens of Japan. Based on this act, in the event of an attack, the public will be warned through the municipalities’ wireless emergency alert systems. Make a note to listen to information broadcast over social media, television, radio, and other media, and follow the instructions.



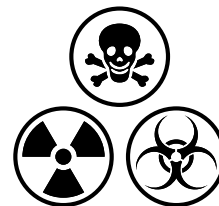
Missile attack

It would be extremely difficult to identify the target of the attack, and it is estimated that the time to impact will be short.



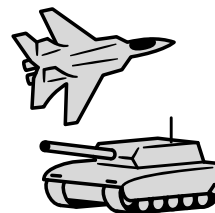
Attack by insurgents or special forces

Such an attack can result in sudden, unpredictable damages. If the target of an attack is a nuclear facility, the damages could be huge.



Attacks using chemical agents, etc.

Attacks using chemical or biological agents, or nuclear materials will have health effects, requiring special response.



Landing invasion and air attacks

In an invasion, landing operations are likely to target the coastal areas, and it can be assumed that air attacks will target major facilities in urban areas.

Protect yourself from a terrorist or armed attack

When there is a risk of terrorism or armed attack, try to obtain information by paying attention to the television, radio, and internet news.



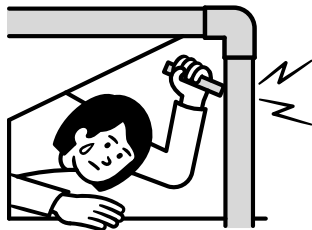
If an explosion occurs

If an explosion occurs, quickly get low and hide under something like a sturdy table. Explosions could continue, so evacuate to a safe place.



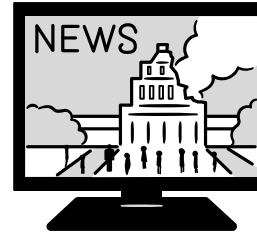
If a fire breaks out

If a fire breaks out due to a terrorist or armed attack, cover your mouth and nose with a handkerchief, etc., to keep from inhaling smoke, and quickly evacuate while keeping yourself as low as possible.



If you're trapped

Tap on pipes or other things nearby to let others know where you are. Calling out loudly for help should be the last resort since this could cause dust to be breathed in.



Evacuation from an attack by insurgents

The damage from an attack by insurgents will generally be limited to a relatively small area, but the damage may spread. First evacuate indoors and then follow the instructions of the authorities.



Evacuation from chemical or biological attacks

Cover your mouth and nose with a handkerchief, and leave the area immediately. Evacuate to a safe place that is unlikely to become contaminated such as a closed-off place indoors or high ground upwind.

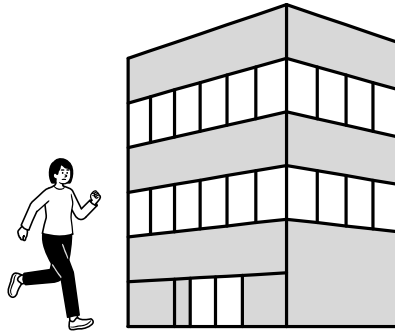


Evacuation from a nuclear explosion or radioactive contamination

Hide behind cover and evacuate to an underground facility or strong building. An explosive called a “dirty bomb” will cause radioactive contamination of the area. Follow the instructions of the authorities and consult a physician.

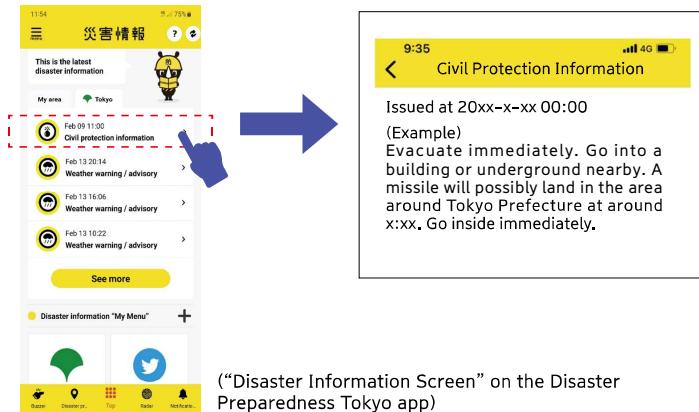
Evacuation from a missile attack

Militarily powerful countries are concentrated around Japan, and there is a noticeable trend toward further strengthening of military power and increased military activity. In particular, North Korea has launched ballistic missiles in quick succession since September 2021 and has been repeating missile launches at an unprecedented rate since the beginning of 2022. These military moves by North Korea pose a grave and immediate threat to Japan's security.



Issuance of warnings via J-Alert

If there is a possibility that a ballistic missile may fall on Japan, the National Early Warning System (J-Alert) which can instantly transmit information, will be activated. In addition to a special siren sound and message being played over the wireless emergency alert system, emergency information will also be sent via emergency alert email to mobile phones. A notification will also be received from the Disaster Preparedness Tokyo app as soon as a J-Alert is issued.



(“Disaster Information Screen” on the Disaster Preparedness Tokyo app)

If you hear a J-Alert



Run away

When you're outdoors

Evacuate inside a nearby building or a basement (a sturdy building is best).



Move away

When you're indoors

Move away from windows or to a room with no windows to avoid being injured by broken glass from a blast.



Protect yourself

When there are no buildings

Hide behind something or get low and protect your head.

*The Tokyo Metropolitan Government is progressing the designation of sturdy buildings and underground facilities as “emergency temporary evacuation facilities,” which are temporary evacuation facilities intended to reduce the direct damage from the blast waves caused by a missile attack.

It is important to evacuate to the nearest building or basement as soon as possible. When doing so, evacuate to a sturdy building or underground facility if there is one nearby.

If a ballistic missile falls

Missiles may contain toxic substances. As a precaution, if you are outdoors, cover your mouth and nose with a handkerchief, move away from the area immediately, and evacuate to a well-sealed indoor location or upwind. If you are indoors, turn off ventilation fans, close the windows, and seal the room.



Civil Protection Portal Site
Evacuation facilities



Infectious Diseases and Pandemics



If there is an infectious disease outbreak

Infections occur when pathogens such as viruses or bacteria enter your body and multiply, resulting in symptoms such as fever, diarrhea, and cough. Infectious diseases from influenza to COVID-19, which spread throughout the world from December 2019, to the Ebola virus disease, from those with a low risk of death to those with a high risk of death, are designated under the Act on Prevention of Infectious Diseases and Medical Care for Patients Suffering Infectious Diseases (Act No. 114 of 1998). If a proper response is not taken, these diseases can spread rapidly in Tokyo with its high population density. If you think you might be infected, immediately get proper treatment at a medical institution.

Classification and approach to major infectious diseases

Category	Designated infectious diseases	Approach to the Category
Class I infectious disease	Ebola hemorrhagic fever, plague, Lassa fever, etc.	Infectious diseases that are extremely dangerous in terms of their transmissibility and the severity if infected
Class II infectious disease	Tuberculosis, SARS, MERS, avian influenza (H5N1, H7N9), etc.	Infectious diseases that are dangerous in terms of their transmissibility and the severity if infected
Class III infectious disease	Cholera, bacillary dysentery, typhoid, etc.	Infectious diseases that can cause an epidemic outbreak through employment in specific occupations
Class IV infectious disease	Rabies, malaria, dengue fever, etc.	Infectious diseases that can be transmitted to humans through animals, food, and other objects
Class V infectious disease	COVID-19, influenza, chlamydia, etc.	Infectious diseases for which the government conducts surveys of infection trends, and based on the results, provides and discloses necessary information to the general public and medical professionals to prevent their outbreak and spread

Source: Ministry of Health, Labor and Welfare "Classification and Approach to Infectious Diseases Subject to the Infectious Diseases Law"
<https://www.mhlw.go.jp/content/10906000/000957753.pdf>

Basic infection control measures

1 Avoid the three Cs (closed spaces, crowds and close quarters).

Avoid closed spaces with poor ventilation, crowded places where there are many people within arm's reach, and close-contact situations where people are speaking at close range.

2 Avoid unconsciously touching your eyes, nose, and mouth with dirty hands

Viruses enter the body through mucous membranes. Be careful not to touch above your neck before washing your hands or using alcohol disinfectant.

3 Wash your hands and disinfect with alcohol frequently

The basics of hand washing are to wash your hands with soap and running water and dry them with a paper towel. If you don't have something to dry your hands with, let them dry naturally.

Pay attention to your health after returning from abroad

If you feel unwell after returning from abroad, there is the risk that you have contracted an infectious disease. Be careful if you have symptoms such as diarrhea or fever after your return. Go to a medical institution as soon as possible.



Infection control measures during a disaster

If a disaster occurs while an infectious disease such as Covid-19 is spreading, the government will call for cooperation in “dispersed evacuation” as a measure to prevent infection. However, if your home is not safe, you will have to live in a designated evacuation center with many other evacuees. As there may be situations where it is not possible to secure a room specifically for infected people, it is important to prevent clusters (group outbreaks) from occurring.

Prioritize evacuating in a small group or individual space

Avoid crowded places with many people and prioritize evacuating in a “small group and individual space” such as your home or a relative's home. If you must evacuate to an evacuation center, it could also be necessary for people to evacuate to hotels, lodging facilities, and community centers as well as private facilities that are not designated as an evacuation center, rather than gathering in large numbers at designated evacuation centers.

Search for a place with a private room

People who have been diagnosed with an infectious disease and those who have not stay in separate rooms as much as possible. When a person suspected of having an infectious disease evacuates, care must be taken to ensure that the dignity of each individual is protected, no matter the circumstances. Best efforts will be made to deal with the situation, including transporting people to hospitals and finding private rooms.

Avoid bringing, taking away and spreading viruses

Volunteers and other support people will undergo thorough health checks and hygiene measures. Precautions should be taken to prevent the spread of infection by not bringing viruses into or carrying them out of disaster-affected areas.

Necessary preparations for infectious diseases

The basic measures against infectious diseases such as Covid-19 are hand washing and cough etiquette, including wearing a mask. Remember to wash your hands with soap, disinfect them with alcohol, or wipe them with a disinfectant wipe before and after touching shared items, when returning home from an outing, before and after cooking, before eating, and after taking out garbage. Furthermore, knowing what items to prepare for the infection control measures that will be necessary at home and at evacuation centers will provide peace of mind in an emergency.

At home

Things to stockpile at home

- Hand washing detergent/soap
- Alcohol disinfectant
- Disinfecting wipes
- Wet wipes
- Antibacterial towels
- Paper towels
- Masks
- Gloves
- Wet body wipes
- Alcohol spray
- Mouthwash
- Wet wipes for cleaning your teeth
- Denture cleaning agent
- Thermometer
- Bottled water
- Medicines (regularly used/stockpiled medicines)



*Water may be cut off during a disaster. To clean your hands when water is not available, wipe them with a disinfectant wipe or wet tissue to reduce the amount of virus. Wiping them with a tissue moistened with bottled water is also effective.

Evacuation center

If you are staying at an evacuation center due to a disaster, be sure to practice thorough infection prevention measures, such as hand hygiene and cough etiquette, even more so than you do at home.

Things to prepare for an evacuation center

Items you should take to an evacuation center

- Hand washing detergent/soap
- Alcohol disinfectant
- Kitchen detergent
- Paper towels
- Alcohol spray
- Masks
- Thermometer
- Goggles



Things you should stockpile at all times

- Bottled water
- Toothbrush set
- Mouthwash
- Denture cleaning agent
- Tissues
- Wet wipes
- Antibacterial towels
- Medicines (regularly used/stockpiled medicines)



Complex Disasters

A complex disaster is a disaster event in which multiple disasters occur simultaneously or in succession, increasing the damage and increasing the difficulty of responding to the disasters. There is the concern that the damage will be intensified, more widespread, and prolonged when similar or different types of disasters occur simultaneously or close to each other in time, such as an earthquake with storm or flood damage, or an infectious disease with an earthquake. It is necessary to also keep these situations in mind.

Earthquake + Heavy Snow: Chuetsu Earthquake

In the October 23, 2004 Chuetsu Earthquake with its epicenter in Ojiya City, Niigata Prefecture, the earthquake occurred at 5:56 pm with a maximum seismic intensity of 7 observed in Kawaguchi Town, where the shaking was strong, followed in quick succession by earthquakes with a seismic intensity of 6 Upper at 6:11 pm and 6:34 pm. There were 46 people killed and 4,801 injured in this earthquake, and many of the deaths were caused by buildings collapsing and landslides called slope failures. Niigata Prefecture has always been an area prone to sediment disasters such as landslides and mudflows. In particular, many landslides occurred due to the earthquake in the area centered around Yamakoshi Village. Furthermore, the Chuetsu region experienced its heaviest snowfall in 19 years that year, and in addition to the earthquake damage, numerous avalanches and sediment disasters occurred; and the damage was further exacerbated by the collapse of buildings due to accumulated snow. Heavy snowfall also delayed reconstruction work in the following year, and it was 2 years and 10 months before all of the residents of Yamakoshi Village returned to their village.



Large-scale landslide over a prefectural road in Myokenmachi, Nagaoka City [Photo provided by Kyodo News]

Earthquake + Infectious Disease: Kumamoto Earthquake

The Kumamoto Earthquake consisted of two earthquakes that occurred on April 14 and 16, 2006, with a maximum seismic intensity of 7. There were 276 deaths including disaster-related deaths, and in Kumamoto Prefecture alone more than 198,000 houses were damaged. As a result, many people took shelter in evacuation centers, and nine days after the earthquake there were still more than 67,000 people in evacuation centers in Kumamoto Prefecture. Around that time, there was a sudden increase in the number of evacuees complaining of diarrhea and nausea at some of the evacuation centers in Kumamoto Prefecture, and norovirus was detected in some patients. Due to a water outage at the evacuation center, people used water kept in buckets to wash their hands after using the toilets, resulting in poor sanitary conditions. Furthermore, as preparation against the frequent aftershocks, many people wore their shoes inside the evacuation center, increasing the risk of norovirus being brought into the residential area from the toilets. After norovirus was detected at an evacuation center, infection control measures such as prohibiting the wearing of shoes inside and disinfecting the toilets with hypochlorous acid were implemented.



Many houses collapsed due to strong shaking in the Terasako district of Mashiki Town, Kumamoto Prefecture [Photo provided by Kyodo News]