



Landslides

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Key facts

- A landslide is the mass movement of rock, debris, earth or mud down a slope. It can be caused by rainfall, earthquakes, droughts, volcanic eruption or erosion. Debris flows are also known as mudslides.
- Preconditions for debris flow are very steep slopes, large amounts of loose debris and water, little vegetation, and land previously burned by wildfires or modified due to human activity, such as deforestation, mining, housing construction or dam construction.
- Climate change and rising temperatures are expected to trigger more landslides, especially in cold mountainous areas, as the melting snow and ice make the rocky slopes more unstable.
- Landslides can damage the health facilities and their services, such as water, electricity or communication lines, impacting access to essential care.
- In the days, weeks (and sometimes months) following a landslide, the main health concerns include diarrhoeal diseases, vector-borne diseases, respiratory and skin infections and other adverse health outcomes.

Main health impacts

Health concern	Risk factors
Trauma (injuries) and high mortality from injuries	<ul style="list-style-type: none"> • Rapidly flowing water and debris can cause high mortality and injuries. The most common cause of death in a landslide is trauma or suffocation by entrapment. • Broken power or gas pipes can also result in injuries like electrocution and burns.

<p>Transmission of infectious diseases: vector-borne diseases, zoonotic diseases, food-borne and water-borne diseases</p>	<ul style="list-style-type: none"> • Broken water or sewage pipes due to a landslide can affect the quality and amounts of water supply, and therefore contribute to an increase in water-borne diseases. • After a landslide, the water supply, sanitation and disposal of waste might be disrupted leading to poorer hygiene conditions. This can increase the presence of vectors such as mosquitos. A proliferation of vectors such as flies could contribute to increased transmission of food-borne diseases. • Displacement of people following a landslide can lead to disrupted access to clean water or latrines, increasing the risk of water-borne and food-borne diseases.
<p>Short- and long-term mental health effects</p>	<ul style="list-style-type: none"> • Landslides can have a high psychosocial and mental health impact, especially for directly affected people.
<p>Acute food insecurity and acute malnutrition</p>	<ul style="list-style-type: none"> • Landslides can have a devastating effect on farmers' livelihoods by preventing access to land for years. They can lead to a loss of seed and food stocks and result in the loss of livestock and crops, which can increase the risk of malnutrition in the affected community (consult FAO for more information).

Priority actions for teams with community and public health response capacity

<p>Immediate steps</p>	<ul style="list-style-type: none"> • Provide first aid for the injured and search and rescue services for trapped persons and animals near the slide without entering the slide areas. Search and rescue activities should always be conducted by trained teams. The Red Cross Red Crescent provides this type of training (disaster management trainings, first aid trainings). Please contact your National Society for more information. • Evacuate people in danger and ensure ambulance transport.
<p>Surveillance</p>	<ul style="list-style-type: none"> • Activate disease early warning systems. • Assess existing surveillance mechanisms (if any). • Monitor weather forecasts, especially for heavy rainfall. • If needed, consider household vector surveillance and community clean-up activities for vectors and breeding sites to reduce vector density.

Community-based action and social mobilization

- Inspect regularly and observe changes in the landscape in your area. Be alert of warning signs in the natural and built environment such as rumbling sounds or shifting grounds.
 - Implement Community Engagement and Accountability (CEA) activities to raise awareness about:
 - Areas that may be more prone to landslides in the community (e.g. use community mapping).
 - Landslides can occur progressively, often some hours or days after a triggering event (e.g. earthquake, heavy rainfall).
 - Highlight the importance of prevention by avoiding building on steep slopes, close to mountain edges, near drainage ways and valleys formed by erosion. Promote and enable expert advice before any construction to minimize the risks.
 - Support planting ground cover on slopes, building retaining walls, keeping storm water drainage systems free of dirt and debris so that water can flow freely when it rains.
 - Keep supplies such as hammer, nails, plywood, sand, sandbags and shovels in the community to enable fast response when needed.
 - If necessary, evacuate vulnerable people (children, elderly, women, disabled people) from their homes to safe areas.
 - Support the social mobilization component of emergency vaccination campaigns as needed.
 - Support the quick re-establishment of livelihoods and natural resources after a landslide by cooperating with authorities and other organizations.
 - Support ICRC in restoring family links.
 - Ensure access to mental health and psychosocial support (MHPSS) services for community members and staff/volunteers which may include (but are not limited to): regularly assessing MHPSS needs; providing information on the situation regularly in cooperation with authorities; training volunteers on the provision of psychosocial support (PSS); using mobile teams providing a range of support; embedding PSS into evacuation centre/shelter facilities; providing special support to vulnerable groups; working closely with authorities in family tracing; coordinating points for further care.
 - Care for volunteers' safety and wellbeing:
 - IFRC Psychosocial Centre (2022) *The Well-being guide. Reduce stress, recharge and build inner resilience.* Available at: [The well-being guide – Psychosocial Support IFRC \(pscentre.org\)](https://www.pscentre.org/)
 - IFRC (2012) *Volunteers, Stay Safe! - A security guide for volunteers.* Available at: [Volunteers, Stay Safe! - A security guide for volunteers \[EN/AR\] - World | ReliefWeb](https://www.reliefweb.org/en/ar/volunteers-stay-safe/)
- For further information on health impacts during floods or earthquakes, see the disaster and crises tools “Flood” and “Earthquake”.

For teams with additional clinical capacity

Please refer to the appropriate local or international guidelines for clinical management. All clinical management including the administration of any treatment should be conducted by health professionals.

Important primary health care interventions after landslides include the following:

- Provide first aid and referral for injured and trapped people.
- Provide care of minor wounds and skin infections.
- If disrupted, advocate and/or support authorities to ensure essential health services and services for people with noncommunicable diseases (NCD).
- Specific primary care interventions for diarrhoeal diseases, vector-borne diseases, respiratory tract infections, toxic contamination, Hepatitis A, typhoid, skin infections, snake and insect bites.
- Tetanus vaccination.

Disease tools that may be relevant

- > Hepatitis A
- > Measles
- > Malaria
- > Cholera
- > Acute respiratory infections (ARI): Influenza (avian and seasonal)
- > Chikungunya
- > Dengue fever
- > Diarrhoeal diseases
- > Hepatitis E
- > Leptospirosis
- > Meningococcal meningitis
- > Plague
- > Poliomyelitis (polio)
- > Typhoid fever
- > Yellow fever
- > Zika virus infection (Zika)