



Chemical, biological, radiological and nuclear insecurity

Last update: 2023-08-08

Key facts

Chemical, biological, radiological and nuclear (CBRN) events may be acute or chronic, from a known or unknown source and may be localized or widespread.

Causes may include damaged nuclear power plants, industrial incidents, intentional exposure during armed conflict or natural contamination.

A CBRN event may be airborne, waterborne, foodborne or transmitted through contaminated soil.

Health effects are specific to the agent, dose and route of exposure. The agent may be an irritant or may have specific toxicity and may contaminate the body in various ways (for example, on contact; inhaled; ingested; etc.).

Main health impacts

| Health concern | Risk factors |
|--|---|
| <p>Health concerns are dependent on the type of CBRN event. Main causes of mortality are from poisoning, which may lead to organ failure, asphyxia or neurological collapse.</p> | <ul style="list-style-type: none">• Specific risk factors are dependent on the type of CBRN event.• Increased level and duration of exposure typically increases severity of impact.• Infrastructure and emergency preparedness systems not equipped to deal with CBRN events lead to increased risk of ill health to the population.• Effects (including destruction or malfunction) of health facilities or equipment may affect service delivery.• Health care providers may become injured or otherwise affected, impacting delivery of care. |

| | |
|--|--|
| <p>Mental health consequences</p> | <ul style="list-style-type: none"> • Mental health impacts including (but not limited to) severe anxiety, post-traumatic stress disorder (PTSD) and depression may occur as a result of experiencing the trauma of a CBRN event (for example, homelessness; losing loved ones; loss of livelihood; etc.). • Experiencing multiple traumatic events can lead to compound or complex trauma. |
| <p>Respiratory illnesses, skin disease and vaccine-preventable diseases.</p> | <ul style="list-style-type: none"> • CBRN events may lead to population displacement. Overcrowded, communal emergency shelters, coupled with difficulty maintaining proper sanitation and hygiene practices can lead to problems such as respiratory illnesses, skin diseases and some vaccine-preventable diseases. |

Disease tools that may be relevant

[_> Acute diarrhoea](#)

[_> Hepatitis A](#)

[_> Hepatitis E](#)

[_> Typhoid fever](#)

[_> Acute respiratory infections preventable by vaccine - Diphtheria, chickenpox, mumps, rubella, whooping cough](#)

[_> Measles](#)

[_> Meningococcal meningitis](#)

[_> Malaria](#)

[_> Acute respiratory infections \(ARIs\)](#)