# Definitions of Selected Medical Concepts and Countermeasures

| Medical Concept or Countermeasure | Type of Agent | | | |
|---|---|---|---|---|
| | Bio | Chemical | RDD | Nuclear |
| **Decontamination** is the process of reducing or removing chemical agents or radiological material. Decontamination may be accomplished either by removing these agents physically (e.g., removing particles or dust either by washing them away or picking them off skin) or by chemical neutralization or detoxification. Decontaminating skin is the primary concern, but eyes and wounds must also be decontaminated when necessary. Liquids and solids are the only substances that can be effectively removed from the skin. It is generally not possible or necessary to decontaminate vapor. Removing survivors from the atmosphere containing the vapor is all that is required. Decontamination will remove contaminants from skin, clothing, hair, but it will not prevent injury from inhaling or ingesting the substance. | | ✔ | ✔ | ✔ |
| **Evacuation** is a precaution aimed at keeping individuals safe by asking them to leave their current location or area to ensure physical safety and reduce their risk of harmful exposures. Individuals may be asked to evacuate a building (e.g., in case of a fire) or an entire neighborhood/area (e.g., in the case of forest fires, floods, radiological contamination). The duration of the evacuation will depend upon the nature of the risk—some risks will dissipate sooner than others. Emergency responders will provide guidance on when it is safe to return to the evacuated site. | ✔ | ✔ | ✔ | ✔ |
| **External contamination** may occur when surfaces and physical environments, including personal clothing, become contaminated when harmful agents (biological, chemical, radiological, or nuclear) are released. If clothing or other materials are exposed to harmful chemicals, the chemicals may be absorbed into the material. The agents may then in turn evaporate from the clothing, posing a health hazard to individuals exposed to the vapors. The length of time during which these surfaces/environments present a health hazard depends on the agent. For example, chemicals may dissipate quickly, whereas anthrax spores can remain in the environment until the surfaces or areas are properly decontaminated and sanitized. Methods of sanitizing and decontaminating areas will vary by the specific agent. | ✔ | ✔ | ✔ | ✔ |
| **Incorporation** happens when radioactive material is inhaled or ingested and crosses cell membranes. Incorporation is a time-dependent, physiological phenomenon that is related to both the physical and chemical natures of the contaminant. | | | ✔ | |
| **Isolation** refers to the separation of persons who have a specific infectious illness from those who are healthy and the restriction of their movement to stop the spread of that illness. Isolation allows for the focused delivery of specialized health care to people who are ill, and it protects healthy people from getting sick. People in isolation may be cared for in their homes, in hospitals, or in designated health care facilities. Isolation is a standard procedure used in hospitals for patients with tuberculosis and certain other infectious diseases. In most cases, isolation is voluntary; however, government at the federal, state, and local levels has basic authority to compel isolation of sick people to protect the public. | ✔ | | | |
| **Off-gassing** may occur as chemicals or vapors are released at normal atmospheric pressure from nonmetallic surfaces. The term refers specifically to evaporation of volatile chemicals that were used in manufacture of nonmetallic materials such as paint, treated lumber, and plastics. | | ✔ | | |
| **Prophylaxis** refers to the provision of a vaccine or drug as a means of preventing or mitigating the consequences of exposure to an agent. In the case of a bacterial exposure such as anthrax, antibiotics, and after exposure, vaccination may be used. In the case of smallpox, vaccines may be given to individuals exposed or likely to be exposed. In the case of viral exposure such as pandemic influenza, antibiotics and vaccines may be used. Prophylactic measures for chemical exposures exist, but they are not used in civilian populations. | ✔ | ✔ | | ✔ |
| **Quarantine** refers to the separation and restriction of movement of persons who, while not yet ill, have been exposed to an infectious agent and therefore may become infectious and ill. Like isolation, quarantine of exposed persons is a public health strategy that is intended to stop the spread of infectious disease. Quarantine is very effective in protecting the public from disease. | ✔ | | | |

# Definitions of Selected Medical Concepts and Countermeasures—continued

| Medical Concept or Countermeasure | Type of Agent | | | |
|---|---|---|---|---|
| | Bio | Chemical | RDD | Nuclear |
| **Secondary contamination** can occur when harmful substances or agents are carried (on a person or physical object) from the area of original exposure to another place, where additional people can come into contact with the agent (secondary exposure). To minimize transmission of harmful agents, appropriate measures to decontaminate and protect yourself should always be used. | ✔ | ✔ | ✔ | ✔ |
| **Social distancing** refers to measures aimed at decreasing the frequency of contact among people. Measures may include closing facilities, schools, and businesses or canceling sporting and social events. | ✔ | | | |
| **Shelter in place** is a precaution intended to keep individuals safe while remaining indoors at their current location (home, work, or school). (This is not the same as going to a shelter in case of a storm.) Shelter in place means staying at your current location. Depending on the threat, individuals may be advised to seek shelter in a particular space within their home, office building, school, or other location (e.g., a small, interior room with no or few windows). Sheltering in place does not entail sealing off an entire residence or office building. Individuals told to shelter in place should follow the instructions provided by emergency responders. | ✔ | ✔ | ✔ | ✔ |
| **Time from exposure to infectiousness** refers to the period between when survivors are exposed to the harmful agent (virus, toxin, or bacteria) and when they become infectious (when they can infect others—assuming it is an agent that can be spread from person to person). The length of time depends on the agent. | ✔ | | | |
| **Time from exposure to showing symptoms** refers to the period between when survivors are exposed to the harmful agent (virus, toxin, or bacteria) and when they begin to show signs and symptoms of exposure or illness. This time can vary depending upon the agent and mechanism of exposure. For example, it can take seconds between exposure to a nerve agent and visible or detectable symptoms. On the other hand, it may take several days until a survivor shows symptoms from a bacterial exposure. | ✔ | ✔ | ✔ | |
| **Transmission** refers to the ways in which different agents (including diseases and infections) can be transmitted or dispersed. It is important to distinguish between agents that can be passed from one person to another (communicable or contagious) versus those that require the person to be exposed directly to the agent. Something is considered contagious or communicable when it is easily spread or transmitted (communicable) from one person to another (such as a virus and some bacterial infections). On the other hand, for some agents to work effectively a person needs to be exposed directly to the harmful agent/substance. The level of exposure required to affect health varies by agent.<br>*Please refer to Terrorism Agent Information and Treatment Guidelines for Clinicians and Hospitals (County of Los Angeles Department of Health Services, 2006) for more information about the transmissibility of terrorist agents.* | ✔ | | | |
| **Treatment** of patients exposed or infected by harmful agents will vary depending on the specific agent. Additional life-threatening injuries or complications that may have resulted during exposure or infection will also require medical attention. In some cases, the demands for life-saving medical treatment will outweigh the demands for decontamination. Health care providers should take appropriate precautions to reduce the potential for secondary decontamination and wear appropriate personal protective equipment to minimize their own exposure/contamination.<br>*Please refer to Terrorism Agent Information and Treatment Guidelines for Clinicians and Hospitals (County of Los Angeles Department of Health Services, 2006).* | ✔ | ✔ | ✔ | ✔ |