

24.4 DECONTAMINATION

24.4.1 DEFINITION

Decontamination usually consists of physical removal or neutralization of hazardous contaminants from personnel or material. New technologies suggest both removing and degrading agents. But washing with water and cleaning with or without surfactants are clearly the most intuitive decontamination methods.

Decontamination is an essential phase to avoid cross contamination, stop chemical percutaneous penetration, and save lives.

Decontamination success depends in particular upon the properties of the agent, environmental conditions, and skin surface. Both chemistry and engineering are required in decontamination design (15).

Instituting decontamination by universal methods is the priority, but an appropriate decontamination process should be set up immediately after contaminant identification to better target an acceptable level of health protection.

24.4.2 DECONTAMINANTS

Knowledge of the properties of the agent in decontamination, also called the decontaminant, are essential to preserve the skin and avoid percutaneous penetration. This highlights that the versatile decontaminants, such as dry sorbents, must be used quickly before an appropriate specific or technical decontamination (16).

Skin decontaminants must not be corrosive to prevent damage by the decontamination processes. Therefore decontamination of eyes (17) and wounds are treated specifically in the first aid of medical care.

24.4.3 ESSENTIAL DECONTAMINANT PROPERTIES

The decontaminant's characteristics such as solubility, stability in a medium, reactivity, nature, and lifespan of its breakdown products must be considered. Temperature, concentration, and pH may influence those parameters (1). An optimum medium dissolves the agents and promotes the desired reaction (18).

24.5 MANAGING DECONTAMINATION

24.5.1 SELF-CARE DECONTAMINATION

It is essential to prevent contamination by developing clean habits for citizens and rescuers, regarding awareness and contamination avoidance. Self-care includes (1) casualties moving away from the contamination source, (2) wiping contaminant off exposed skin and hair, and (3) disrobing to minimize chemical penetration into skin and thereby limit contaminant dose (19).

24.5.2 ASSISTED DECONTAMINATION

This concept occurs from practical and operational observations. In emergency situations, we tend to help each other. This instinctive reflex needs to be consolidated and developed. Assisted decontamination of chemical agents could serve as a forum for advanced teaching and learning and facilitate development in the emerging field of decontaminants. Therefore, some simple and fast manipulations could be taught as collaborative techniques from the earliest age.

24.5.3 DISROBING

Disrobing, also called cut out, is proposed in every case and is widely recognized among scientists. In contrast there will be a delay between initial chemical exposure and decontamination setup for civilians