

PREFACE

Purpose

This manual serves as a guide and a reference for trained members of the Armed Forces Medical Services and other medically qualified personnel on the recognition and treatment of chemical agent casualties and conventional military chemical injuries. Additionally, this manual provides information on first aid (self-aid, buddy aid, and combat lifesaver (CLS) aid) for these casualties.

Scope

- a. This manual—
 - (1) Classifies and describes chemical agents and other hazardous chemicals associated with military operations.
 - (2) Describes how to diagnose and treat conventional military chemical injuries (that is, riot control agents, smokes, incendiary agents, and other inhaled noxious industrial-type chemicals).
 - (3) Describes procedures for recognizing chemical casualties (app A).
 - (4) Describes procedures for first aid, medical treatment, and medical management of chemical casualties.
 - (5) Describes measures for handling contaminated clothing and equipment (app B).
 - (6) Describes medical management and treatment in chemical operations (app C).
 - (7) Describes procedures for decontamination of the eyes and skin (app D).
 - (8) Describes procedures for administering the Nerve Agent Antidotes, MARK I (NAAK) and convulsant antidote for nerve agent (CANA) (app E).
- b. The manual is divided into two parts:
 - (1) Part One, Chemical Agent Casualties, covers the recognition and treatment of nerve agents, incapacitating agents, blister agents (vesicants), lung-damaging agents (choking agents), and blood agents (cyanogens) casualties.
 - (2) Part Two, Conventional Military Chemical Injuries, covers the recognition and treatment of injuries caused by riot control agents, smokes, incendiary agents, and other noxious industrial-type chemicals.
- c. The material in this manual is applicable to both the conventional battlefield and the integrated environment of the battlefield. (For the purpose of this manual, the “integrated environment” is intended to mean warfare and/or contingency operations where nuclear, biological, and chemical (NBC) weapons/agents are being employed or have a high probability of being employed in addition to conventional weapons.)

Definitions

- a. *Chemical Agent.* This is a chemical substance which, because of its physiological, psychological, or pharmacological effects, is intended for use in military operations to kill, seriously injure, or incapacitate humans (or animals) through its toxicological effects. Excluded are riot control agents, chemical herbicides, and smoke and flame materials. Chemical agents may be nerve agents, incapacitating agents, blister agents (vesicants), lung-damaging agents, blood agents, and vomiting agents.
- b. *Chemical Contamination.* This is the deposition of chemical agents on personnel, clothing, equipment, structures, or areas. Chemical contamination mainly consists of liquid, solid particles, and vapor hazards. (Vapor hazards are probably the most prevalent means of contaminating the environment.)
- c. *Chemical Decontamination.* This is the process of sufficiently reducing the hazard caused by chemical agents in order to allow the mission to be continued. Decontamination can be done by individual service members, unit decontamination teams, or chemical units. Generally used methods for skin decontamination include removal and/or chemical neutralization of agent(s) and clothing removal for medical examination; for equipment, the methods used are removal, destruction, covering, weathering, and chemical neutralization.
- d. *Persistence.* Chemical agents maybe divided into two main categories: persistent and nonpersistent.
 - (1) Persistent agents, in a solid or liquid state, continue to present a hazard for considerable periods after delivery. They remain as a contact hazard and/or an inhalation hazard by very slowly vaporizing.
 - (2) Nonpersistent agents dissipate or vaporize rapidly after release and present an immediate short duration hazard. These agents are released as aerosols, gases, vapors, liquids, or solids.
- e. *Physical Characteristics.* Chemical agents cover the whole spectrum of physical properties. Their physical state may be aerosol, gaseous, liquid, or solid under normal conditions. Their vapor pressure (the force

exerted by the vapor when in equilibrium with the liquid or solid at a given temperature) may be high or negligible. Their vapor density varies from slightly lighter than air to considerably heavier than air. Their range of odors varies from none to highly pungent. They may be soluble or insoluble in water, fats, or organic solvents. The physical characteristics may give an indication of the field behavior of the agents with regard to vapor hazard, persistency, decontamination methods required, and personal and subsistence protection required.

f. Conventional Military Chemicals. These are chemical substances used within the military for day-to-day operations as well as in combat. Included in this group are chemical herbicides, insecticides, and smoke and incendiary materials.

g. Riot Control Agent. This is a chemical which produces transient effects that disappear within minutes of removal from exposure and very rarely require medical treatment. Riot control agents are effective in quelling civil disturbances and, in some military operations, to preclude unnecessary loss of life.

h. Noxious Chemicals. Included in this category are gases such as carbon monoxide (CO), oxides of nitrogen, chlorine vapor, hydrogen sulfide, and ammonia.

For a more comprehensive list of definitions, see Glossary, Section II, located in the back of this manual.

Use of Trade Names/Trademarks and Metric Measurements

a. Use of trade names or trademarks in this publication is for illustrative purposes only. Their use does not constitute endorsement by the Department of Defense.

b. Metric measurements used throughout this publication are approximate equivalents of the customary units of measure. They are provided for the convenience of the users of the manual.

User Comments

Users of this manual are encouraged to submit recommendations to improve the publication. Comments should be keyed to the page, paragraph, and line(s) of the text where the change is recommended. Reasons should be given for each comment to ensure understanding and complete evaluation. The proponent for this publication is the U.S. Army Medical Department Center and School (AMEDDC&S). Comments should be submitted on DA Form 2028 (Recommended Changes to Publications and Blank Forms) and forwarded to: Commander, AMEDDC&S, ATTN: MCCS-FCD, Fort Sam Houston, Texas 78234-6175.

References

References listed should be consulted for details beyond the scope of this manual.