APPENDIX A

RECOGNITION OF A CHEMICAL CASUALTY

A-1. General

a. Medical personnel must be familiar with the signs and symptoms of chemical agent poisoning to avoid repetition of the experience of World War I. Medical officers frankly admitted that they were severely handicapped by their lack of experience in treating gas poisoning cases. They were often in doubt as to whether they were dealing with men suffering from gas poisoning or not.

b. Medical and tactical intelligence channels should communicate with each other as early as possible. Threat information on potential use of CW weapons / agents by enemy forces is important for planning and executing health service support operations. Once CW weapons have been used, identification of agents will be important to medical intelligence channels for operational purposes.

c. Medical units should rely on information not only from detectors and intelligence sources, but also from the casualties themselves. This applies particularly to agents for which at present there is no satisfactory detector (such as incapacitating agents). Some of the problems in the recognition and diagnosis of casualties suffering from the effects of CW operations are discussed here. Medical personnel must remember that with nerve agents, signs and symptoms may range from mild (such as miosis, headache and tightness of the chest) to signs and symptoms associated with severe poisoning (such as convulsions and respiratory failure). The nature and timing of symptoms will vary with the route of exposure. Although choking agents are less likely to be employed, the possibility of their use must not be forgotten. The danger is that the quiescent period which follows the initial poisoning might be mistaken for recovery with service members being sent back to duty even after a lethal dose. Battle casualties must be carefully examined to exclude the possibility of a psychometric agent having been used; especially those whose behavioral changes are not compatible with the physical signs of disability. When chemical agents have been used by the enemy, it is important that the fullest and earliest information be given to medical units. The information is used to facilitate the diagnosis of individual cases and to permit the arrangement for the reception of casualties.

A-2. Types of Casualties

a. On the chemical battlefield, the following types of casualties may be seen:

(1) *Conventional casualties.*

(a) Conventional casualties with no chemical injury and with no contamination of their clothing and equipment.

(b) Conventional casualties with no chemical injury but with contamination of their clothing and equipment.

(2) *Direct chemical casualties.*

(a) Chemical casualties with no other injury.

(b) Mixed casualties with conventional and chemical injuries. Since chemical munitions often include burst charges, such injuries may occur as part of a chemical agent attack. They may also be present when the chemical injury and conventional injury occur at different times. Other types of mixed casualties may be from nuclear or biological weapons used as well as the chemical weapons. Also, mixed casualties may result when chemical injuries are combined with natural illnesses (infectious disease still accounts for the majority of casualties in conventional warfare).

(3) *Indirect chemical casualties.*

(a) Casualties suffering CSR occur often in warfare, but may be more frequent where the CW threat exists. The service member will have the additional stress of isolation from wearing the chemical protective ensemble; additional fatigue when wearing the garments; and fear of chemical agents. As in World War I, the differential diagnosis between the CSR casualties and chemical casualties may sometimes be difficult.

(b) Some chemical agent antidotes can have undesirable side effects when taken inappropriately, or in large enough quantities. Atropine, for instance, causes decreased heat tolerance at a dose of 1 mg. Higher doses can cause tachycardia, dryness of the mouth, and decreased sweating. Medical personnel must be aware of the side effects of available antidotes and be alert for their appearance.

(c) Wearing the protective ensemble makes dissipation of excess body heat more difficult. Wearing the mask also makes water intake very

difficult. Both will increase the probability of heat injury (heat exhaustion or heat stroke).

A-3. Recognize Chemical Casualties

a. Any individual who suddenly becomes a casualty without being wounded or who is suffering a greater degree of incapacitation than is compatible with his wound should be considered a possible chemical casualty. The differential diagnosis will include the possibility of psychiatric casualties. It is unlikely that chemical agents will produce single casualties under field conditions. Also, a chemical attack should be suspected with any sudden increase in numbers of unexplained casualties. If chemical operations are unlikely, and if only a few service members are affected, another toxic hazard may be more probable (for example, CO).

b. Under operational conditions, the medical situation may be complicated by the psychological effects. To determine if the casualty has been caused by a chemical agent, the medical officer should ask questions along the following lines:

- Was the casualty wearing full MOPP at the time of the attack?
- Were there any aircraft or artillery bombardment in the area at the time of the attack?
- Was there any evidence of spray, liquid droplets, or smoke?
- Was anyone else affected and if so, what affects?

Did the casualty notice any unusual smell? (This is not a very reliable indicator under battle conditions, but it should be considered.)

c. To recognize a chemical casualty, the identity of the agent must be determined.

(1) The medical officer should look for the following signs and symptoms:

- An unexplained sudden runny nose.
- A feeling of choking or tightness in the chest or throat.
- Blurring of vision and difficulty in focusing the eyes on close objects.
- Irritation of the eyes.
- Unexplained difficulty in breathing or increased rate of breathing.
- Sudden feeling of depression.
- Anxiety or restlessness.
- Dizziness or light-headedness.
- Slurred speech.
- Nausea.
- Muscular weakness.

(2) Also question the patient about the delay or rapidity of the onset of symptoms. Was there any delay between exposure or contamination and the onset of effects? If so, how long was the delay?

- Did the effects persist after adjustment of the protective mask?
- Has the casualty used any self-injection device or did anyone else use any injection devices on the casualty? If so, did the symptoms improve or deteriorate?
- Is the casualty's behavior normal?

d. To assess the dose of agent received by the patient, determine the following:

- Was the casualty exercising or at rest?
- Was the casualty in the open or under cover?
- For how long was the agent inhaled?
- How long was the interval between suspected contamination and decontamination?