

MEDICAL MANAGEMENT OF CHEMICAL DISASTERS

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1. Introduction

In the absence of a comprehensive reporting system no accurate estimates on the number of chemical incidents are available.

Joined reports from three different reporting systems indicate that in the United States of America in 1986 an average of 1.6 hazardous materials incidents a day result in either death, injury, or evacuation (1). These data provide only minimum estimates of unintentional hazardous chemical incidents (1).

Chemical spills, releases, smaller scale accidents and near disasters are seen with sufficient frequency in the world to warrant serious attention to the potential for large-scale incidents.

A potential disaster can occur at every point in the cycle of production, storage, transportation, use and disposal of the chemical substances (2).

Chemicals that often feature in such incidents are natural gas, chlorine, gasoline, ammonia, sulfuric acid, hydrogen chloride, propane, phosgene, hydrogen sulphide and nitrous fumes (1,3,4). Organophosphorus and carbamate insecticides and chemical war agents are other potential sources for a large-scale incident (5). Hazardous materials accidents, including those chemical substances that are flammable, explosive, corrosive, reactive, or poisonous, will provide mainly thermal and chemical burns, inhalation injuries and systemic toxicity (2,4).

management of chemical disasters is often problematic because of the dramatic circumstances of such incidents, the lack of a coordinated planning and response, the problems about identification and the availability at the scene of the disaster of detailed toxicity data for most of the offending agents, frequent exposure to multiple toxins and the immediate and continuous risk for rescue and emergency medical system (EMS) personnel (2,5-9). Without some knowledge and preparation and in the absence of close coordination and communication, what appears to be a minor accident can quickly become a major catastrophe affecting an entire community (4,7).