HOSPITAL PREPAREDNESS FOR CHEMICAL ACCIDENTS

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The medical sector must sharpen its preparation for response to small and large chemical accidents. Both urban and rural communities are at risk for disastrous escape of dangerous chemicals, such as solvents, heavy metals, cyanide, caustics, corrosives, and formaldehyde. In 1988 alone, more than 1,300 incidents involving the release of toxic chemicals were reported across the United States.[1] More compelling is The Acute Hazardous Events Data Base, a federal compilation of information about accidents in the years 1982 to 1988. The figures are grim. 309 deaths, more than 11,000 persons injured, and almost 1,600 people hospitalized.[2] In the analysis, which examined the ratio of quantity-toxicity of more than 3,000 accidental releases, it was found that in 17 of the accidents, the toxicity of the chemicals released exceeded the level of toxicity following the incident at Bhopal, India. These U.S. accidents were not disastrous because most of the chemicals did not undergo dangerous chemical change. More important, they were contained because communities planned effectively and were able to mitigate the dangers with an able response. Although efforts are being made by government and industry to reduce the number of accidents, it is only a matter of time before a major leak occurs and hospitals will be overwhelmed with exposed patients.

Leonard[3] and Plante and Walker[4] have developed guidelines for the medical personnel who handle toxic exposures at the accident site and before patients reach the hospital. Several authors have delineated treatment protocols for toxic exposures,[5-8] including definition of what equipment and facility modification is needed.[9] Others have detailed hospital protocols for the management of patients experiencing acute radiation exposure.[10, 11]

Landesman[12] and Leonard et al[13] have suggested the need for the medical community to accelerate its involvement in preparing for chemical accidents following the implementation of the Superfund Amendments and Reauthorization Act of 1986 (SARA).[14] However, there is no guide that provides comprehensive information about internal preparation by hospitals for chemical accidents.

What follows is a critical summary of ideas and instructions for improved hospital preparedness. The legal requirements for accelerating preparations are reviewed. A model to help hospitals prepare for chemical accidents follows. Finally, specific recommendations are provided for the use of space and supplies, the organization of the response team, communication, and the needs of the general hospital.

Requirements Regarding Preparedness for Chemical Accidents

SARA[14] and the plant, technology, and safety management (PTSM) standards of the Joint Commission on Accreditation of Healthcare Organizations[15] have required hospitals to review their preparations for both external chemical accidents and the internal management of hazardous materials.