Australasian College
for Emergency Medicine

Emergency department hazardous material response plan

Policy P30

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Document Review

Timeframe for review:	Every three years, or earlier if required
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Revision History

Version	Date	Pages revised / Brief Explanation of Revision
V1	Nov 03	Approved by Council
V2	Jan 08	Reviewed and approved by Council
V3	Mar 11	Reviewed and approved by Council
V4	Nov 20	Substantial revision and addition of content about HAZMAT preparedness and response 'References' added 'Background' and 'Related Documents' added

Related documents

This Policy should be read in conjunction with the following ACEM documents:

- P33 Policy on Emergency Department Disaster Preparedness and Response
- G764 Clinical Guidelines for the Management of COVID-19 in Australasian Emergency Departments
- G26 Reducing the Spread of Communicable Infectious Disease in the Emergency Department Guidelines
- *Management of Respiratory Disease Outbreaks Guidelines*

1. Purpose and scope

This policy relates to emergency department (ED) preparedness and response to a single presentation or mass presentations by people known or believed to be contaminated by hazardous chemical, biological, radiological or nuclear (CBRN) materials.

The policy applies to materials, regardless of source, that have a credible, real or potential risk of harm to any person coming into contact with either the material or with a person contaminated by the material.

The policy is applicable to EDs in Australia and Aotearoa New Zealand.

The clinical management of hazardous material/CBRN contaminated patients is outside the scope of this document. Appropriate clinical guidelines[1], toxicologists and reference textbooks should be consulted for those purposes..

2. Background

Hazardous material or CBRN contamination incidents can occur as a result of occupational or recreational exposure, industrial or natural disaster, criminal acts, or acts of terrorism or warfare[1].

EDs have a frontline role providing emergency care for exposed or contaminated persons. Appropriate planning and preparedness are necessary for an effective response, and to protect staff and the ED environment from secondary contamination[2,3]. Depending on the incident type and magnitude, response may also involve non-ED staff and external health and non-health agencies, which require structures for coordination, communication and control[3,4].

3. Policy

EDs need to have a preparedness and response plan for hazardous material/CBRN contamination incidents. This plan is necessary to protect staff, patients and other people in the ED while providing timely care for those exposed to, or contaminated by, hazardous materials.

4. Procedures and actions

4.1 Although response to hazardous material may be included in generic disaster plans, additional planning specific to hazardous material/CBRN response is required, and should consider scenarios of single presentation, limited casualty and mass casualty incidents.

4.2 Planning needs to provide for recognition and response when there may be little or no advance warning that a hazardous material/CBRN incident has occurred and/or of presentations by contaminated people. A key risk is that patients may self-present directly to the ED, bypassing or pre-empting the establishment of incident site triage and decontamination[1].

4.3 Appropriate Personal Protective Equipment (PPE) needs to be available and provided to protect any participating staff against the hazard. Standard universal precautions are inadequate. Hazardous material/CBRN-specific PPE is required, which may include powered air-purifying respirators (PAPRs) and chemically protective clothing (with gloves, suit and boots)[5]. PPE selection should be based on anticipated “worst-case” staff exposure scenario[5].

4.4 Procedures to ensure adequate and appropriate PPE stock for hazardous material/CBRN response are required. This includes selection of PPE type(s) and amounts, appropriate storage and maintenance, regular checks for integrity and performance, and arrangements for sourcing additional PPE type(s) and amounts if required[5].

4.5 Guidelines need to be created on the use of PPE and which ED staff members may or may not be able to use the PPE or participate in a response, guided by relevant principles of Work Health and Safety[2].

4.6 Competency training in use of appropriate PPE (including fitting, donning, working in and doffing) should be provided on a regular and ongoing basis to staff who may be involved in hazardous material/CBRN response[5]. A register of trained, available and willing response staff should be maintained[2].

4.7 Procedures to protect the ED physical environment and equipment from contamination are required to ensure continuation of safe care for patients not involved in the hazardous material incident.

4.8 Methods of isolating contaminated or potentially contaminated patients prior to full decontamination are required. There should be pre-designated and separated space(s) for triage and decontamination of such patients. This should ideally be prior to ED entry and away from ED entrance(s) to maintain free access for ambulances and other non-incident presentations[1].

4.9 Facilities and procedures for effective decontamination of single or multiple casualties need to be established.

4.10 Facilities for decontamination must incorporate considerations such as location, patient flow, patient privacy, gender segregation, water temperature regulation, and management of waste-water run-off[1,2,6].

4.11 There should be clear designation of responsibility (and appropriate training) for the maintenance, assembly and operation of any decontamination facility. This responsibility may lie in part or full with an external agency, such as the Fire Service, and should be clearly stated and mutually agreed[6].

4.12 Procedures for management of removed clothing and personal effects/valuables, including placement in sealed plastic bags, identification and secure storage, are required. This should also consider for scenarios where such effects need to be treated as evidence and chain of custody maintained[1].

4.13 Procedures for maintaining and/or emergency procurement of antidotes and other relevant pharmaceutical stock should be established[2]. This should include how to activate access to National and State Medical Stockpile sources of antidotes and specific treatments for CBRN exposures.

4.14 EDs should consider specific sources of hazardous materials in the area they service, such as those used by industry and agriculture, in their planning and preparedness. This should include local supplies of any relevant antidotes or specific treatments for exposures to these hazardous materials. EDs should work with local industry bodies to ascertain pathways for accessing any antidotes and treatments they may stock for occupational exposures to hazardous materials.

4.15 ED response plans should articulate with relevant local, state/territory and national hazardous material/CBRN and disaster plans. There should be a clear delineation of the ED's functional roles, communication and information channels, and position within the command and control structure in relation to other stakeholders and agencies in a multi-agency response.

4.16 Contact lists for external personnel and agencies relevant to a hazardous material/CBRN response should be maintained, regularly updated, and made available and known to all ED staff. This is especially important for personnel and agencies with which EDs do not regularly interact. These include, but are not limited to[1,6]:

- General: Police, fire, HAZMAT, ambulance and retrieval services
- Chemical: Toxicologist, poisons information, HAZMAT scientist, environmental health officer
- Biological: Infectious disease specialist, public health unit
- Radiological/Nuclear: Medical physicist (nuclear medicine), radiation safety officer

4.17 Regular testing (both independently and with other agencies) and review of the ED's response plan should be conducted.

4.18 EDs and emergency physicians should be actively involved in hazardous material/CBRN response planning and testing at all levels, including for local, district, state/territory and national plans.

5. References

1 Australian Health Protection Principal Committee. Australian clinical guidelines for acute exposures to chemical agents of health concern: a guide for the emergency department staff. 2nd ed. Canberra, ACT: Australian Government Department of Health; 2015. Available from: https://www1.health.gov.au/internet/main/publishing.nsf/Content/ohp-exposure-chemical-agents-guidelines.htm

2 Tan GA, Fitzgerald MCB. Chemical–biological–radiological (CBR) response: a template for hospital emergency departments. Med J Aust 2002;177(4):196–9.

3 Razak S, Hignett S, Barnes J. Emergency department response to chemical, biological, radiological, nuclear, and explosive Events: A systematic Review. Prehospital Disaster Med 2018;33(5):543–9.

4 Australian Health Protection Principal Committee & Australian Government Department of Health. Health CBRN Plan: Domestic health response plan for chemical, biological, radiological or nuclear incidents of national significance. Canberra, ACT: Australian Government Department of Health; 2018. Available from: https://www1.health.gov.au/internet/main/publishing.nsf/Content/ohp-health-cbrn-plan.htm

5 Occupational Safety and Health Administration (OSHA). Best practices for hospital-based first receivers of victims from mass casualty incidents involving the release of hazardous substances. Washington D.C.: U.S. Department of Labor; 2005. Available from: https://www.osha.gov/Publications/osha3249.pdf

6 Australian Institute for Disaster Resilience (AIDR). Australian Disaster Resilience Handbook Collection: Health aspects of chemical, biological and radiological hazards. Melbourne, VIC: AIDR; 2000. Available from: https://knowledge.aidr.org.au/media/1960/manual-13-health-aspects-of-chemical-biological-and-radiological-hazards.pdf

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