Guideline 9.5.1 – First Aid Management of Poisoning

Summary

Who does this guideline apply to?

This guideline applies to adults, children and infants.

Who is the audience for this guideline?

This guideline is for use by bystanders, first aiders and first aid training providers.

Summary of Recommendations

The Australian and New Zealand Committee on Resuscitation (ANZCOR) makes the following recommendations for first aiders in managing those who have or may have been exposed to poison [all Good Practice Statements]:

1. Take active steps at home and in the workplace to prevent exposure to poisons.

2. Recognise potential risks and send for an ambulance early.

3. Remove the person who has been poisoned from the source or remove the source from the person if it is safe to do so.

4. If the person is unresponsive and breathing normally, position them in a lateral, side-lying recovery (lateral recumbent) position (Refer to ANZCOR Guideline 3).

5. If the person is not responding and is not breathing normally, commence resuscitation if safe to do so, following the ANZCOR Basic Life Support Flowchart (Refer to ANZCOR Guideline 8).

6. Contact the National Poisons Centre for specific advice (available 24 hours)

    1. Australian Poisons Information Centre call **13 11 26**
    2. New Zealand Poisons Centre call **0800 764 766** (0800 POISON)

7. Decontaminate only if it is safe to do so.

8. Ensure the poison is secured and ambulance personnel are advised of any information on poison.

1.0 | Introduction

A *poison* is a substance (other than an infectious substance) that is harmful if ingested, inhaled, injected, or absorbed through the skin. Substances that have no effect or may be therapeutic at low levels (for example, medicines and herbal remedies) may be poisonous at higher concentrations.

Toxins are poisons that are produced by living organisms. *Venoms* are toxins that are injected by an organism. For information on Bites and Stings, go to ANZCOR Guideline 9.4.3 - First Aid Management of Envenomation from Tick Bites and Bee, Wasp and Ant Stings.

Poisoning is a common problem with many events reported in Australia and New Zealand. Most cases are unintentional and one third are children aged 1 to 4 years.[1] The best treatment for poisoning is constantly changing. Advice you may have received in the past may no longer be the recommended treatment, hence the advice to call the Poisons Information Centre in your country.

2.0 | Prevention

- Many poisons are substances that also have a useful purpose. Poisoning is particularly common in children and vulnerable adults so ensuring poisons are only accessible to those who need and know how to use them reduces their risk of harm.
- It is useful to make a survey of the home or workplace and identify all poisonous substances.
- The amount of poisonous substances stored in a home should be kept to a minimum.
- Unwanted poisons or medicines should be removed. Chemicals should be disposed of safely using the accompanying directions for guidance. Medicines should be returned to a pharmacy for safe and environmentally friendly disposal. The National Poisons Information Centre can also advise on methods of safe disposal.
- Store all poisons including medicine and chemicals in their original containers . Poisonous substances must be stored in locked or child-resistant cupboards or containers out of reach of children. Medicines should not be stored in the refrigerator unless advised to do so by a pharmacist.
- Non-poisonous cleaning products and insecticides should be used where possible.
- When possible, choose substances available in child-resistant packaging. However, do not rely on child-resistant packaging to prevent a child’s access to a poison, because child-resistant containers are not completely child proof.
- Closely supervise children around the home.
- Don't call medicines 'lollies' when giving medicine to children.
- Do NOT decant chemicals into drink bottles.
- Read medicine labels and use according to the directions. When medicines are taken ensure the right:
    - medication

        - person
        - dose
        - route of administration
        - reason for administration
        - time and frequency of administration.
    - The recommended personal protective equipment (PPE) should be used when using toxic or caustic chemicals, for example spraying, painting, or oven cleaning. For industrial or commercial products this information can be found in the Safety Data Sheet for the product. For many non-commercial consumer products, the labeling may contain first aid instructions and safety directions, including recommended PPE.
    - Eating and drinking should be avoided near poisons.

3.0 | Recognition

- Poisons can cause harm by a wide range of mechanisms and can cause a wide range of symptoms including reduced levels of responsiveness, difficulty breathing, cardiac arrest, nausea, vomiting, burning pain in the mouth or throat, headache, blurred vision, seizures and burns to skin, eyes, mouth, nose and throat.
- The circumstances of the incident may give an indication that poisoning has occurred. A person may complain of physical symptoms without realising these are due to a poison. Alternatively, they may exhibit abnormal behaviour, which may be misinterpreted as confusion or mental health disturbance.
- Most medicines are poisonous in overdose. The point at which overdose becomes harmful is substance/medicine specific and varies greatly, but many medicines are lethal if less than a single pack is taken simultaneously.
- The speed of effect of a poison is determined by the chemical and physical properties of the toxic material, the concentration of the toxic material, the route of exposure (oral, skin, eyes, inhalation, injection), and the length of time of exposure. The effects may be rapid, but they may also be delayed.
- It is important to seek medical assessment after exposure to a poison, even if symptoms are initially mild or absent.
- Poisoning can mimic other conditions such as intoxication, seizures, stroke.
- If poisoning is suspected, look for clues – empty pill bottles/packets, scattered pills.
- With children, consider the possibility of swallowed button battery (see below) or medicinal patches (normally applied to the skin).

4.0 | Management

The principles of managing a person who has been poisoned are:

- Recognise **Danger,** maintain safety and prevent poisoning of the first aid provider.
- **Send** for an ambulance and possibly fire services for containment and decontamination where necessary.
- **Resuscitation** and supportive care, using the ANZCOR Basic Life Support Flowchart (Refer to ANZCOR Guideline 8). If unresponsive and **breathing normally**, position in a lateral, side-lying recovery (lateral recumbent) position and ensure airway is clear (Refer to ANZCOR Guideline 3). If not responding and not breathing normally, commence

resuscitation if safe to do so, following the ANZCOR Basic Life Support Flowchart (Refer to ANZCOR Guideline 8).
- **Decontamination** of the skin or eyes if they have been exposed to poison and if it is possible and safe to do so.
- If possible, ascertain what poison or medicine has been taken, how much, and when.
- **Specific management** of particular poisons, including antidotes, techniques to remove the poison from the body, and the treatment of complications of the poison, which is most commonly undertaken in the hospital setting.

4.1 | Recognising Danger, maintaining safety

During first aid and subsequent treatment, the suspected poison should be identified and safely handled to minimise further exposure. The person exposed to a poison may pose a danger if the poisonous substance can be transferred to the rescuer, for example, by contact with contaminated clothing.

- If the poisoning occurs in an industrial, farm, or laboratory setting, suspect particularly dangerous agents and take precautions to avoid accidental injury. Attempt to identify the area that is contaminated, limit the spread of contaminated material, and establish a cordon around this area using any practical means such as tape, markers, or control points on access roads.
- If more than one person simultaneously appears affected by a poison, there is a high possibility of dangerous environmental contamination.
- The rescuer may need to wear personal protective equipment (PPE) during decontamination and resuscitation. The need for PPE will be guided by knowledge of the likely poison. If the equipment is not available to decontaminate and treat a person safely, rescue might not be possible.

4.2 | Sending for an ambulance and other assistance

Send for an ambulance promptly. The ambulance service will be able to offer advice on management of the person before the ambulance arrives. The National Poisons Information Centre (Australia call 13 11 26, New Zealand call 0800 764 766 or 0800 POISON) is available 24 hours, and can also offer advice before an ambulance arrives. If suspected area/environmental contamination, consider sending for fire service attendance to contain the agent and decontaminate the area and affected people. If possible, ascertain what poison or medicine has been taken, how much, and when.

4.3 | Decontamination

Separate the person from the poisonous substance. How this is done will depend on the type of poison. Examples are listed below.

If the poison is **SWALLOWED**

- Get the person who has swallowed the poison water to wash out their mouth.
- **Do NOT try to make them vomit or give syrups or solutions that induce vomiting.**[2-4]
- Do not attempt to get the person to ingest any substance to try to neutralise acids or alkalis.

If the poison is **INHALED**

- Immediately get the person to fresh air, without placing yourself at risk.
- Avoid breathing fumes. Special breathing apparatus may be required in the presence of poisonous gas or chemicals.
- If it is safe to do so, vent the area by opening doors and windows wide.
- Avoid using electrical applinaces, turning on light switches if inflammable gases are suspected

If the poison enters the **EYE**

- Flood the eye with saline, contact lens solution or cold water, continuing to flush for 15 minutes, holding the eyelids open.

If the poison contacts the **SKIN**

- Remove contaminated clothing, taking care to avoid contact with the poison. Place the clothing in a plastic bag, using caution to contain the poison unless certain of the type of poison, type of plastic, and the interaction of the two.
- Do not attempt to neutralise acids or alkalis on the skin. Flood the skin with running water ensuring to keep the person warm or irrigate with copious amounts of water or 0.9% sodium chloride.
- Wash gently with soap and water and rinse well. Having the person do this themselves reduces the risk to rescuers.

Those poisoned by environmental contamination will have to be removed from the environment. Once trained personnel arrive, a management plan defining three zones will allow this to be done safely.

1. The “hot” zone contains the environmental contaminant.
2. The “warm” zone is where contaminated persons are taken to be decontaminated. Rescuers and health care workers will require PPE in the warm zone. The poisonous material is present here, but it is contained.
3. The “cold” zone is where people are taken once they have been decontaminated and pose no risk.

4.4 | Resuscitation and supportive care

- Send for an ambulance.
- If unresponsive and **breathing normally**, position the person in a lateral, side-lying recovery (lateral recumbent) position (Refer to ANZCOR Guideline 3) and ensure the airway is clear.
- Rescuers should perform chest compressions for all those who are unresponsive and not

breathing normally (Refer to ANZCOR Guideline 8) [CoSTR 2020[5], Good Practice Statement].
- For those trained in their use, a self-inflating bag-mask apparatus is the safest way for the rescuer to provide ventilation.
- If there is poison remaining on the person's lips, if corrosive chemicals have burnt the lips and chin, or if the rescuer is unsure of the nature of the poison, continue to perform chest compressions without providing any ventilation.
- Inhaled poisons are unlikely to pose a risk during mouth-to-mouth ventilation unless the person is contaminated with the liquid form of the inhaled poison.

4.5 | Specific Management of particular poisons

- If possible, ascertain what poison or pharmaceutical has been taken, how much, and when.
- Check for opened packets of medications in cases of suspected self-poisoning and try to collect vomitus, if any, in a plastic container, and send them to hospital with the person.
- Look for signage (HAZMAT placards) on the fences or doors to industrial sites or laboratories or on the rear of trucks. This signage can provide information about hazardous materials that are classed, categorised and colour coded. When calling the emergency services, they may be ask for this information to determine the response.
- Obtain advice from the ambulance service (000 in Australia or 111 in New Zealand) promptly. Other sources of medical advice will depend on the situation but may include:
  - National Poisons Information Centre (available 24 hours)
  - Australian Poisons Information Centre call **13 11 26**
  - New Zealand Poisons Centre call **0800 764 766** (0800 POISON)
  - Occupational health facilities
  - A general practitioner or urgent care medical centre
  - A hospital emergency department.
- Some poisons have specific antidotes. With some exceptions these are rarely used outside of a hospital. However, accurate identification of the poison will help treatment. If there are packets or bottles, they should be secured and go with the person to hospital.
- Industries that have an increased risk of exposure to particular poisons may stock specific antidotes. Those working in these environments may have specialised training and protocols for the administration of these antidotes. Hospitals may not always stock specific antidotes to poisons so a supply of the antidote should accompany the poisoned person to hospital.

4.6 | Suspected button battery ingestion

Button battery ingestion is increasing in frequency, probably due to the increasing number of electronic devices using them as a power source.[6] Unfortunately, the button battery, even when discharged, can cause serious injury or death, usually when lodged in the oesophagus. Button batteries when swallowed, are more likely to lodge in a narrow oesophagus, seen in infants and children, being the very group most likely to swallow a button battery. The risk is increased if the battery has a large diameter[7], such as the common CR3032 battery.[8] The injury of the oesophagus can be seen in experimental animal models within 15 minutes of ingestion and increases with time, particularly in the undischarged battery.[9] Thus, timely intervention is imperative. This applies to both detection of the possibility of ingestion of a button battery and

to definitive treatment (generally in a hospital).

Ingestion of a button battery should be suspected in an individual with any of the following signs and treatment should not be delayed trying to obtain a more definitive history:[7]

- The person gives a history of ingestion of a button battery.
- The device is found with the battery compartment open.
- The person (child) is drooling or vomiting.
- The person is complaining of chest pain in any of the above circumstances.

If ingestion of a button battery is suspected:

- Seek medical care immediately, either by sending for an ambulance or taking the person to the nearest Emergency Department.
- Give nothing by mouth if difficulty breathing or bleeding.
- Encourage the person to swallow 10 mL (2 teaspoons of honey every 10 minutes until they reach higher level of care).[9, 10] Do not delay referral to medical care whilst attempting this. If honey is not available, jam[11] or sucralfate suspension should be used.
- Give nothing else by mouth.

The benefit of swallowing honey has been observed in experimental studies (cadaver and animal) and is thought to be due to reducing the change in pH in the oesophagus and the formation of an insulating layer around the battery due to its high viscosity. An observational study noted no injury in 8 patients aged 1 to 3 years treated with honey until removal of the battery.[9, 10]

If unable to get advice, or while waiting for help to arrive:

- Monitor the person, especially their airway, level of response and breathing, and manage according to the ANZCOR Basic Life Support Flowchart (Refer to ANZCOR Guideline 8).

Further Reading

- ANZCOR Guideline 8 Cardiopulmonary Resuscitation
- ANZCOR Guidelines 9.4.1 to 9.4.8 Envenomations
- For information on specific poisons, consult the Australian Poisons Information Centre on 13 11 26 or New Zealand poisons centre 0800 764 766 (0800 POISON)

References

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About this Guideline

Search date/s	2010 – 2018. Scoping search Button battery ingestion recognition and treatment Aug 24
Question/PICO:	Original literature review undertaken on management of cyanide poisoning, not included in this guideline
Method:	Scoping review 2018 for new publications since 2010 on all except cyanide, no significant new publications found Scoping search on recognition and first aid treatment of button battery ingestion
Primary reviewers:	Finlay Macneil, Kevin Nation, Michael Reade
Other consultation	Geoffrey Newman-Martin
Major changes	Section on button battery ingestion
Worksheet	Appx 1
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