

# Foreign body in the nose - Emergency management in children

## Purpose

This document provides clinical guidance for all staff involved in the care and management of a child presenting to an Emergency Department (ED) in Queensland with a suspected or confirmed foreign body in the nose.

This guideline has been developed by senior ED clinicians and Paediatricians across Queensland, with input from ENT specialists, Queensland Children's Hospital, Brisbane. It has been endorsed for use across Queensland by the Queensland Emergency Care of Children Working Group in partnership with the Queensland Emergency Department Strategic Advisory Panel and the Healthcare Improvement Unit, Clinical Excellence Queensland.

## Key points

- Consequences of nasal foreign bodies range from local irritation at insertion site, to serious complications including death.
- Urgent ENT referral (onsite or via Retrieval Services Queensland (RSQ)) is required for button batteries and paired magnets due to the risk of necrosis of surrounding tissue.
- The first attempt at removal of a foreign body from the nose has the best chance of success.
- Refer to ENT for removal if first attempt (via any method) is unsuccessful.

## Introduction

Nasal foreign bodies are more common in the following children:

- aged two to five years
- intellectual impairment (may have multiple foreign bodies and repeated episodes)

Common foreign bodies include food, paper and small toy parts. Most nasal foreign bodies are found in the anterior nasal cavity between the floor of the nose and inferior turbinate.<sup>1</sup> High rates (92-98%) of successful removal in ED have been reported.



## Button batteries

Button batteries require immediate removal due to the risk of necrosis of the surrounding tissue.



There are two main mechanisms by which button batteries can cause necrosis:

- where there is sufficient retained battery charge, hydrolysis and creation of hydroxide ions in adjacent tissues leads to mucosal burn at battery's negative pole
- direct pressure

Despite prompt removal, the risk of injury can continue up to weeks post-insertion due to residual alkali and weakened tissues.

## Assessment



**ALERT** – Button batteries require immediate removal to prevent necrosis of surrounding tissue and septal perforation.

### When to suspect a foreign body in the nose

Most children with a nasal foreign body are asymptomatic. A history of insertion may be reported by the child or the caregiver. Delayed presentations are usually triggered by parents noticing blood stained purulent discharge or a bad smell.

Regardless of a history of insertion, consider a nasal foreign body in children presenting with any of the following symptoms:

- nasal occlusion
- epistaxis
- malodorous, purulent or blood-stained nasal discharge (usually unilateral but may be bilateral if multiple foreign bodies or in case of septal perforation)
- facial swelling and/or facial pain



### Differential diagnoses for suspected nasal foreign body

Upper respiratory tract infection

Rhinitis

Sinusitis

Unilateral choanal atresia

Tumour

## Investigations

X-rays are not routinely recommended as the objects inserted are rarely radiopaque but must be considered if there is a possibility of a button battery or paired magnets which cannot be directly visualised.



Contact Retrieval Services Queensland (RSQ) to arrange urgent transfer of a child with a suspected button battery and no X-ray facilities are onsite

## Management

Refer to Appendix 1 for a summary of the emergency management for a child with a nasal foreign body.



Urgent ENT referral (onsite or via RSQ) is required for the following children:

- button battery in nose
- history of insertion and bleeding or airway issues



Refer to ENT as per local practices in the following circumstances:

- multiple unsuccessful attempts at removal prior to ED presentation
- foreign body is posterior and not easily visualised
- paired magnets or magnet and metallic object across nasal septum
- chronic or impacted foreign bodies with marked inflammation
- penetrating or hooked foreign bodies

### Principals of foreign body removal

- first attempt offers the best chance of success
- choose the best method based on exact location, shape and composition of foreign body (see methods below)
- be aware of the risk of trauma and/or posterior displacement and aspiration in a poorly compliant child

### Preparation for foreign body removal

- engage two staff members to assist (in addition to carer)
- provide developmentally appropriate information and encouragement and use demonstration or role play to prepare the child for the procedure
- position the child appropriately (upright or lying down)
  - upright positioning encourages a sense of control thereby minimising distress



- ideal upright positioning is on the carer's lap with his/her head supported by staff member
- may be easier to secure younger children lying down
- refer to [CHQ Nursing Standard 62111: Clinical Holding – Holding and Supporting Children](#) (QH only)
- use auditory and visual distraction techniques and promote child's coping skills
- prior to mechanical extraction, consider applying topical local analgesia such as Co-Phenylcaine Forte (5% Lignocaine, 0.5% Phenylephrine) at appropriate doses using flexible nozzle extension (maximum single dose of 3 mg/kg Lignocaine) 10 minutes prior to removal (not routinely recommended prior to removal by positive pressure techniques).
- **use a head lamp (+/- magnification) to optimise visualisation and allow the use of two hands**
- consider using a nasal speculum to maximise visualisation (place in a cephalo-caudal orientation to avoid the nasal septum)

**Blind attempts at removal are not recommended due to risk of posterior dislodgement and aspiration.**



**ALERT** – Topical nasal drops including local anaesthetic and vasodilators are contra-indicated in button battery cases. They may increase the risk of posterior displacement and aspiration or local necrosis.

## Methods of removal

Recommended methods of removal include positive pressure or mechanical extraction. Positive pressure methods aim to push the foreign object anteriorly either completely out of nasal passage or into a visible range where it can be grasped by other instruments. These methods carry a theoretical risk of barotrauma including periorbital subcutaneous emphysema. Irrigation and use of glue are **not** routinely recommended. Sedation is not recommended as may increase the risk of aspiration.

The risk of aspiration in foreign bodies that are unable to be removed is estimated to be 1 in 1,500 patients.<sup>2</sup> Referral for elective removal is therefore acceptable with appropriate safety-net advice for the family.

Positive pressure removal methods for nasal foreign body		
Method	Indication	Description
<b>Self-blow / exhale technique</b>	<ul style="list-style-type: none"> <li>• recommended for removal of small, smooth, spherical objects in a cooperative patient (usually greater than three years of age)</li> </ul>	<ul style="list-style-type: none"> <li>• child is encouraged to blow their nose whilst occluding the nostril opposite to the foreign body</li> </ul>
<b>Parent's kiss</b>	<ul style="list-style-type: none"> <li>• recommended for removal of small, smooth, spherical objects</li> <li>• well tolerated even in small children without requiring restraint</li> </ul>	<ul style="list-style-type: none"> <li>• caregiver seals the child's mouth with their mouth whilst occluding the unaffected nostril then gives a short sharp puff of air to dislodge the foreign body.</li> </ul>



Mechanical extraction removal methods for nasal foreign body		
Method	Indication	Description
<b>Forceps</b> (including Magill, alligator, packing, toothed and non-toothed forceps)	<ul style="list-style-type: none"> <li>recommended for soft, irregular small objects</li> <li>not recommended if object is smooth, round or friable</li> </ul>	<ul style="list-style-type: none"> <li>gently grasp the object with the forceps and pull out of nares</li> <li>avoid repeated grasping attempts as may push more posteriorly</li> </ul>
<b>Probe</b> (e.g. Jobson-Horne probe)	<ul style="list-style-type: none"> <li>recommended for hard non-graspable objects which do not fully occlude nares</li> </ul>	<ul style="list-style-type: none"> <li>probe tip passed beyond and posterior to object and removed by pulling object anteriorly and out of the nare</li> </ul>
<b>Suction</b>	<ul style="list-style-type: none"> <li>recommended for smooth or spherical visible mobile objects</li> </ul>	<ul style="list-style-type: none"> <li>use micro suction tube (Schuknecht tube or Frazier tip) attached to wall suction to form a solid seal between tube and object</li> </ul>
<b>Balloon catheter</b> (e.g. small foley or commercial catheter)	<ul style="list-style-type: none"> <li>recommended for smooth round foreign bodies which do not fully occlude the nasal passage</li> <li>risk posterior displacement of foreign body</li> </ul>	<ul style="list-style-type: none"> <li>lubricate the catheter and advance past the object, partially inflate the balloon and withdraw</li> </ul>
<b>Magnetic device</b> (see image below) 	<ul style="list-style-type: none"> <li>consider for removal of metallic objects such as ball bearings or button batteries if visible</li> <li>risk pushing foreign body further into nose</li> </ul>	<ul style="list-style-type: none"> <li>slowly and safely introduce the magnet into the nose until an audible or palpable click is produced at which point carefully withdraw</li> </ul>



Refer to ENT as per local practice if first attempt at removal of foreign body (via any method) is unsuccessful.

## Post-removal care

- inspect nasal orifice to exclude co-existing foreign body and trauma
- examine other nasal and aural orifices for additional foreign bodies



## Potential complications following removal of nasal foreign body

- rhinorrhoea
- epistaxis
- ulceration of the nasal mucosa
- perforation of nasal septum
- nasal or choanal stenosis
- infection
- ingestion
- sinusitis
- periorbital cellulitis
- meningitis

In the event of epistaxis, apply direct pressure to control the bleeding. Refer to [Epistaxis guideline](#) (QH only).



Refer to ENT as per local practice in child with significant complications

## Escalation and advice outside of ED

Clinicians can contact the services below to escalate the care of a paediatric patient as per local practices. Button battery cases require urgent transfer if removal onsite is not possible. Other nasal foreign bodies requiring specialist referral are usually managed as an outpatient.



### Button battery insertions



**ALERT** – Button batteries require immediate removal to prevent necrosis of surrounding tissue.

Service	Reason for contact	Contact
ENT	For urgent removal of button battery.	<p>Onsite or via Retrieval Services Queensland (RSQ). For facilities with no onsite service contact RSQ (Ph: 1300 799 127) to request urgent transfer of a child:</p> <ul style="list-style-type: none"> <li>• requiring removal of button battery (as time-critical)</li> <li>• requiring X-rays if button battery is suspected but unable to be visualised and no X-ray facility onsite (as time-critical).</li> </ul> <p>RSQ (access via QH intranet) Notify early of children potentially requiring transfer.</p>





## Other insertions

Reason for contact by clinician	Contact
<p>For the management of children with the following nasal foreign bodies:</p> <ul style="list-style-type: none"> <li>posterior and not easily visualised</li> <li>paired magnets or magnet and metallic object across nasal septum</li> <li>chronic or impacted with marked inflammation</li> <li>penetrating or hooked</li> <li>remain despite multiple attempts at removal prior to ED presentation</li> <li>unable to be removed following a single attempt in ED</li> </ul> <p>For specialist advice regarding significant complications following successful removal of foreign body in ED.</p>	Onsite/local ENT service as per local practices.

## Disposition

A child may be discharged following successful removal of the foreign body.

On discharge, provide accident prevention advice to caregiver/s including:

- safe storage of small objects including marbles, coins, button batteries and balloons to ensure out of reach of infants and young children
- ensuring toys for play are appropriate for developmental age

### Follow-up

- advise caregiver/s to seek medical attention if child experiences any signs or symptoms of complications such as fever, purulent nasal discharge, epistaxis, facial pain and/or swelling
- referral to ENT as per local practice any child with significant complications following foreign body removal

## References

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- Qureshi, A.A., Lowe, D.A., McKiernan, D.C., (2009) 'The origin of bronchial foreign bodies: a retrospective study and literature review', European Archives of Otorhinolaryngology, Vol. 266 pp. 1645-1648

## Guideline approval

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### Disclaimer

This guideline is intended as a guide and provided for information purposes only. The information has been prepared using a multidisciplinary approach with reference to the best information and evidence available at the time of preparation. No assurance is given that the information is entirely complete, current, or accurate in every respect. We recommend hospitals follow their usual practice for endorsement locally including presenting it to their local Medicines Advisory Committee (or equivalent) prior to use.

The guideline is not a substitute for clinical judgement, knowledge and expertise, or medical advice. Variation from the guideline, taking into account individual circumstances may be appropriate.

This guideline does not address all elements of standard practice and accepts that individual clinicians are responsible for:

- Providing care within the context of locally available resources, expertise, and scope of practice
- Supporting consumer rights and informed decision making in partnership with healthcare practitioners including the right to decline intervention or ongoing management
- Advising consumers of their choices in an environment that is culturally appropriate and which enables comfortable and confidential discussion. This includes the use of interpreter services where necessary
- Ensuring informed consent is obtained prior to delivering care
- Meeting all legislative requirements and professional standards
- Applying standard precautions, and additional precautions as necessary, when delivering care
- Documenting all care in accordance with mandatory and local requirements

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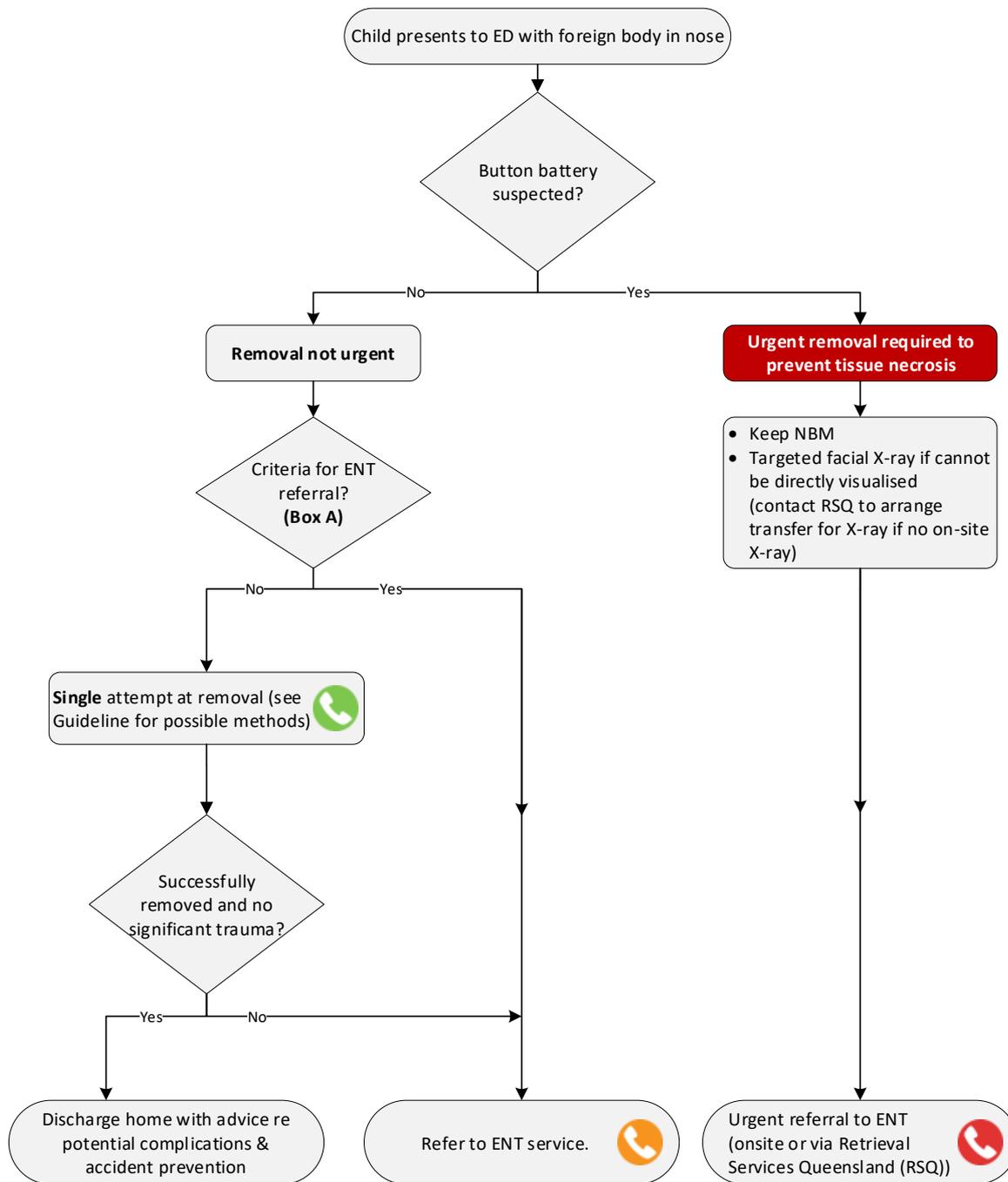


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**Box A: Criteria for ENT referral**  
 Refer a child with the following foreign bodies to ENT (do not attempt removal in ED):

- posterior and not easily visualised
- paired magnets or magnet and metallic object across nasal septum
- chronic or impacted with marked inflammation
- penetrating or hooked
- remain despite multiple attempts at removal prior to ED presentation

Consider seeking senior emergency/ ENT advice as per local practices

Refer to onsite/local ENT as per local practices.

Refer to ENT (onsite or via Retrieval Services Queensland (RSQ) on 1300 799 127) for urgent removal

CHQ-GDL-60022- Appendix 1 V1.0

