



Clinical Guideline:

Authors: EoE ingested foreign body working group

For use in: EoE Paediatric Units, EoE Emergency Departments

Guidance specific to the care of children 0-16 years

Used by: paediatricians, general surgeons, anaesthetists, ENT surgeons, paediatric emergency medicine physicians, radiologists, nurses.

Key Words: foreign body, button battery, magnet,

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Approved by:

<p style="text-align: center; color: red;">Surgery in Children Clinical Oversight Group</p>	
<p>Clinical Lead Milind Kulkarni</p>	<p style="text-align: center;">Milind Kulkarni</p>

Audit Standards:

Providers should participate in audits of the Paediatric Foreign Body Ingestion guidance against these recommendations to identify opportunities to improve safety, quality and performance.

Audit points

- Review local implementation of the Paediatric Foreign Body Ingestion Guideline with providers through the Clinical Oversight Group quarterly meetings.

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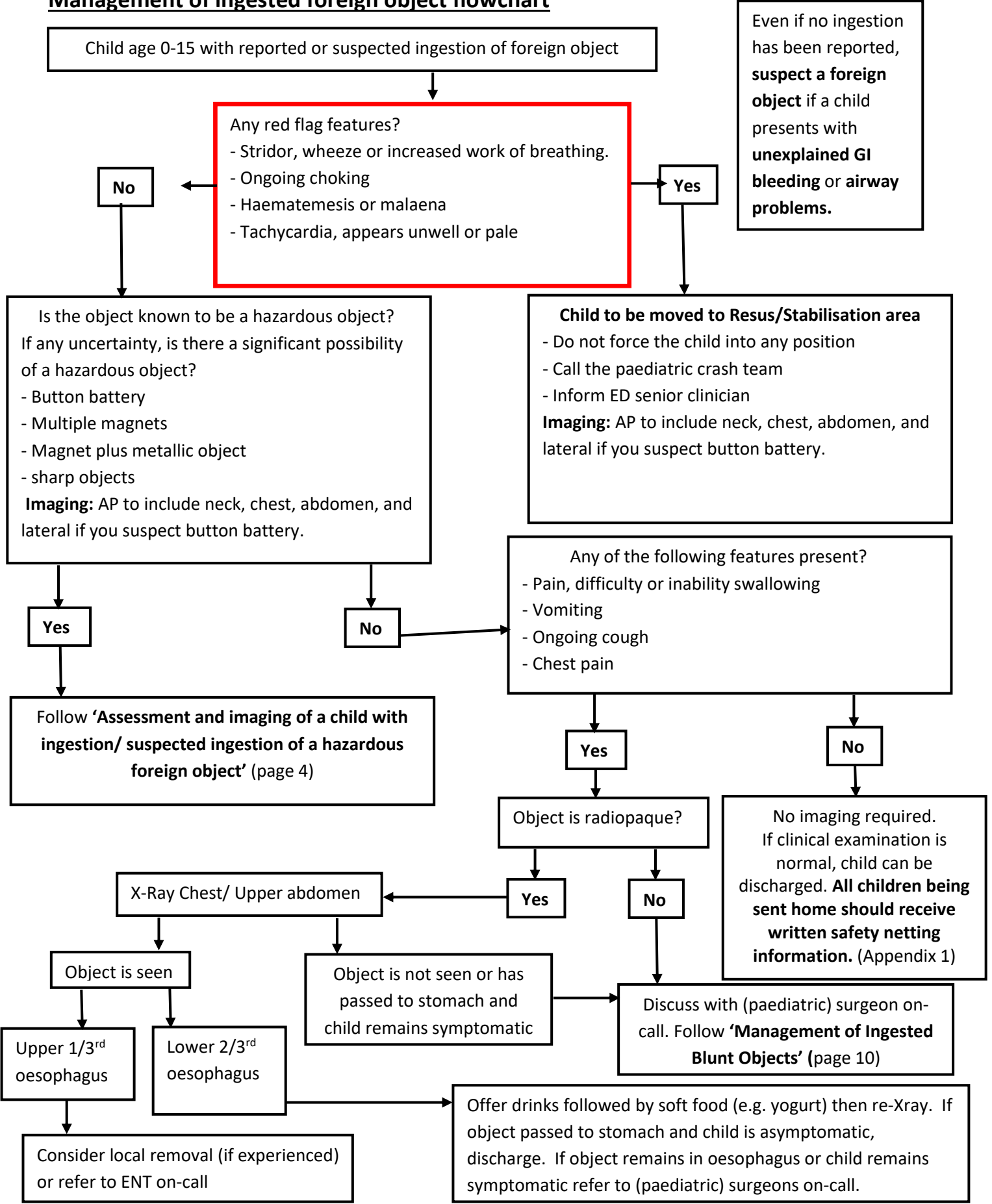
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Introduction

This is the East of England Foreign Body FINAL DRAFT v2 Guideline for the management of suspected or known foreign body ingestion in children 0-15 years. This work is the culmination of a working group including general paediatric, emergency medicine, anaesthetic and ENT specialists and was first published in 2022.

The aim of this guideline is to provide a framework for the assessment and management of children presenting with ingested foreign bodies anywhere in the region.

Management of ingested foreign object flowchart



Even if no ingestion has been reported, **suspect a foreign object** if a child presents with **unexplained GI bleeding or airway problems.**

Emergency management of life threatening ingestion

i) When to suspect life threatening ingestion

Life threatening ingested objects will usually manifest as **Airway, Breathing or Circulation** problems. Objects can cause respiratory problems either by direct obstruction of the airway, or indirectly through being in the oesophagus and causing pressure on or eroding into the airway. Objects in the GI tract become life threatening through erosion leading to bleeding or perforation or both.

Signs and symptoms that need to be managed as **immediately life threatening** include:

Stridor, wheeze or increased work of breathing Actively choking	Haematemesis or malaena Tachycardia /appears unwell or pale
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ii) Getting help

A child presenting with red flag features of an ingestion or suspected ingestion should be managed in a resuscitation area and will require a team appropriate to the situation. Key members of the team include:

<ul style="list-style-type: none"> • Senior Emergency Medicine clinician • Experienced nurse • Senior Anaesthetist • Surgeon (Paediatric surgeon if available) • ENT surgeon if upper airway or upper oesophageal foreign object • Senior paediatrician 	In all cases, <u>senior decision makers</u> need to be present in order to plan for transfer to theatre or another unit when needed. Where there is thought to be life threatening complications of a battery ingestion injury consider early advice from nearest tertiary unit.
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Getting the appropriate people will vary according to site and in many cases it will be most appropriate to activate a paediatric crash call or trauma call.

iii) Initial actions

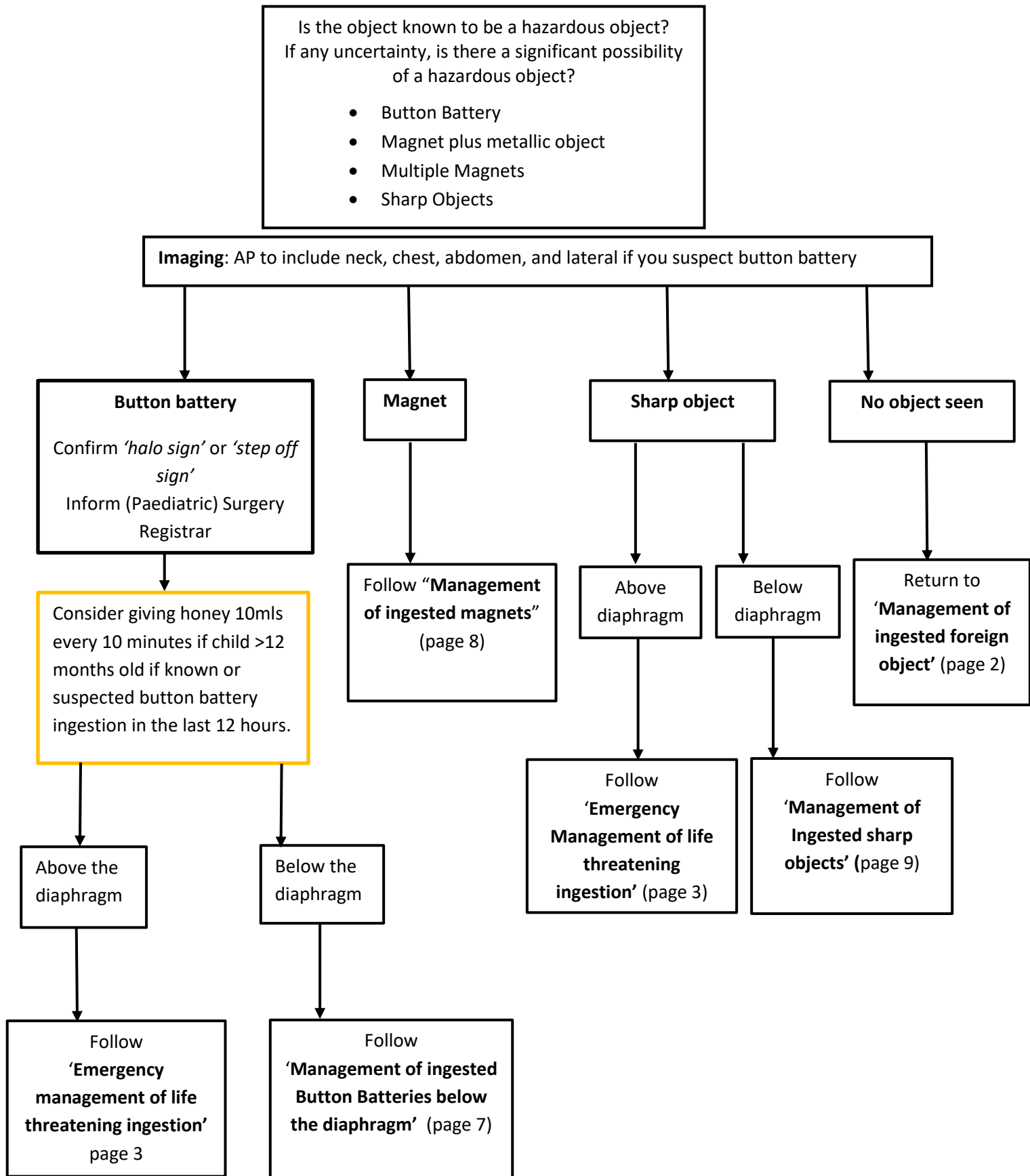
Do nothing that makes things worse. Children will usually find their own best position and should not be forced into another position. Airway flow is worse if the child is more upset. Do everything possible to keep the child and any accompanying adult as calm as possible. Further management will depend on whether the life-threatening presentation is thought to be respiratory or circulatory.

Respiratory presentations	Circulatory Presentations
<ul style="list-style-type: none"> • Apply facial oxygen if tolerated • Monitor oxygen saturations • Ensure that ENT is coming urgently • If the child is collapsed, manage as per APLS guidelines 	<p>Treat as haemorrhage - activate major transfusion protocol</p> <ul style="list-style-type: none"> • Obtain intravenous access or intraosseous access • Obtain blood samples – Full blood count, urea & electrolytes, clotting, crossmatch. • In preference use blood products from the outset • Avoid crystalloid and colloid if possible. • Give IV analgesia and monitor effect

iv) Transfers

All oesophageal foreign bodies need removal within 2 hours of ingestion, where this is not possible at the current facility the child must be transferred urgently for removal as there is an immediate risk to life. In agreement with the East of England Ambulance Service Trust (EEAST) staff should request a category 2 transfer, stating that there is an immediate risk to life. It would be courteous to ensure the team and patient are ready for transfer at time of request as this will be removing a front line ambulance from other category 2 calls in the community. Use the STOPP (Appendix 2) tool to support decision-making. Contact regional Paediatric and Neonatal Decision and Retrieval team (PaNDR) on 01223 274274 for any clinical decision making support.

Assessment and imaging of a child with ingestion / suspected ingestion of a hazardous foreign object



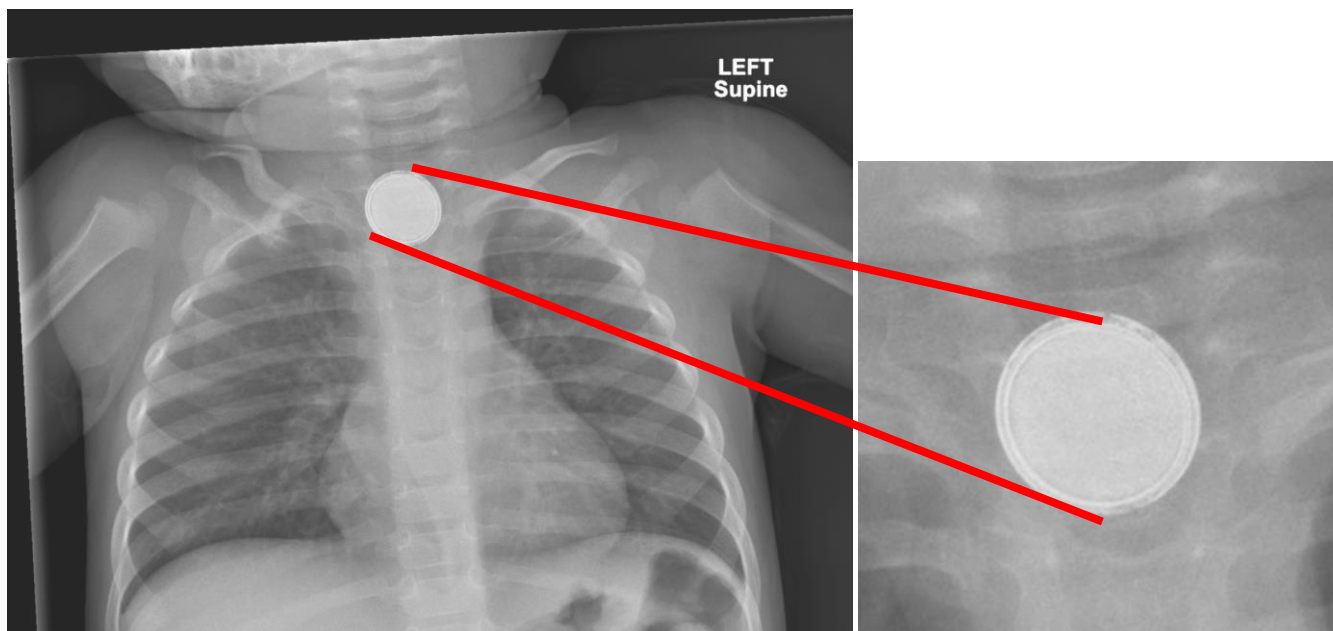
Assessment and imaging of child with ingestion/ suspected ingestion of a hazardous foreign object.

While oesophageal button batteries are the most high risk presentation, any hazardous foreign object may lead to damage of the gastrointestinal tract. Children may be asymptomatic at first assessment. The aim is to identify and risk assess to prevent harm before it occurs.

When a child presents with foreign object ingestion, the object may be known with complete certainty. Where there is uncertainty (e.g. a young child reports swallowing a coin but was not witnessed) it is better to assume a hazardous object ingestion due to the potential risks of delayed diagnosis.

X-ray is the imaging of choice for suspected hazardous objects. Metal detection will not detect all button batteries or magnets. A plain chest X-ray will locate the majority of hazardous objects. If there is no object on the chest X-ray and the object is a button battery or magnets then an abdominal X-ray should be obtained.

Note that button batteries can mimic coins on X-ray. Look for a double rim indicative of a button battery. A lateral film may help to discriminate.



Children with ingested button batteries in the oesophagus should be offered honey which mitigates the erosive effect of the button battery. The child should otherwise be kept nil by mouth and referred to surgeons urgently.

As a button battery passes through the GI tract, the risk of harm rapidly diminishes.

Deliberate self-harm and safeguarding:

The majority of foreign body ingestions are accidental. Healthcare workers should take the opportunity to discuss risk reduction in the future especially with hazardous substances. Rarely there may be a safeguarding concern following a foreign body ingestion which should be escalated according to local protocol.

Assessment & Imaging of child with ongoing symptoms following ingestion of a non-hazardous object.

Children who have ingested a non-hazardous object will usually pass the foreign body without complications. The child with an object stuck in their oesophagus will usually present with emotional distress or difficulty swallowing. Objects that have passed to the stomach are very unlikely to become stuck.

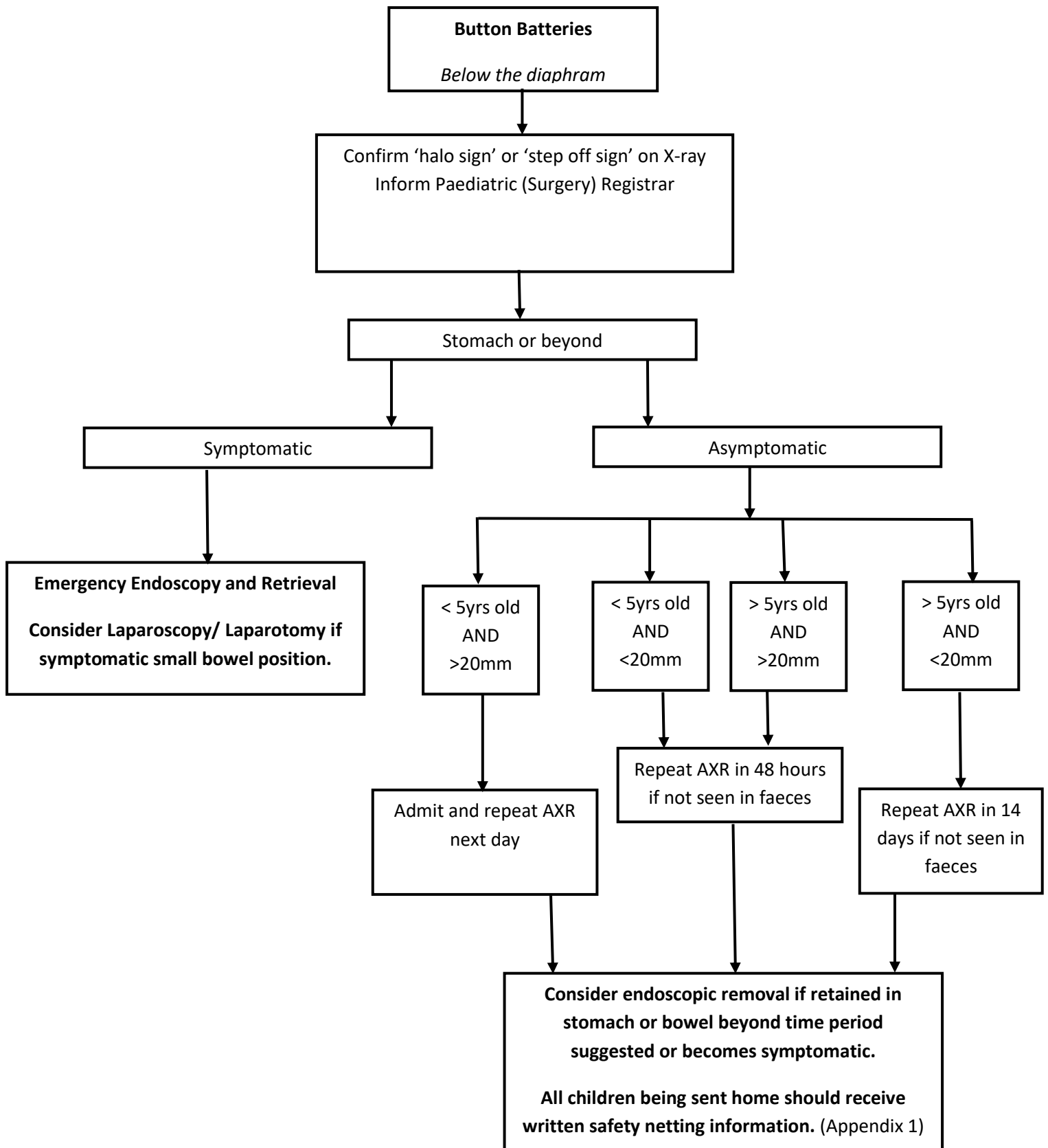
Symptoms of oesophageal impaction: Refusal of oral intake or distress when swallowing, chest pain, or vomiting.

- **A child with a new cough may have an inhaled foreign object.**
- In a symptomatic child, imaging is helpful to locate the object. The use of a **metal detector is not recommended** as more detail is needed for significant ingestions and no investigations are needed if the ingestion is non-hazardous and asymptomatic. A chest X-ray that includes the stomach will suffice as this includes all of the areas in which problematic foreign objects are likely to be seen. In asymptomatic children, able to swallow, the object can be presumed to have passed to the stomach - no imaging is needed.
- If a symptomatic child has swallowed a radiolucent object, referral to paediatric surgeons is advised.
- If a radiopaque object is in the upper third of the oesophagus it is less likely to pass easily. Someone experienced in the 'Foley catheter technique' can remove objects. Otherwise, referral to ENT is needed.
- If a radiopaque object is in the lower two thirds of the oesophagus it is reasonable to give analgesia and attempt to dislodge the object by encouraging the child to drink and then progress to soft diet. If a child is able to then swallow solids, the object will have passed to the stomach which can be confirmed by repeating the X-ray.

When an object has passed to the stomach it is very unlikely to become stuck again and children will usually become asymptomatic at this point. Children can then be discharged with safety-netting advice (appendix 1) to return if they report abdominal pain or start to vomit. Children who remain symptomatic should be referred to paediatric surgeons on call.

Checking stool - There is no need to recommend that parents check through stools to confirm passage of the foreign object as in the very rare cases where the object becomes stuck despite passing to the stomach, the child will become symptomatic.

Management of Button Batteries below the diaphragm

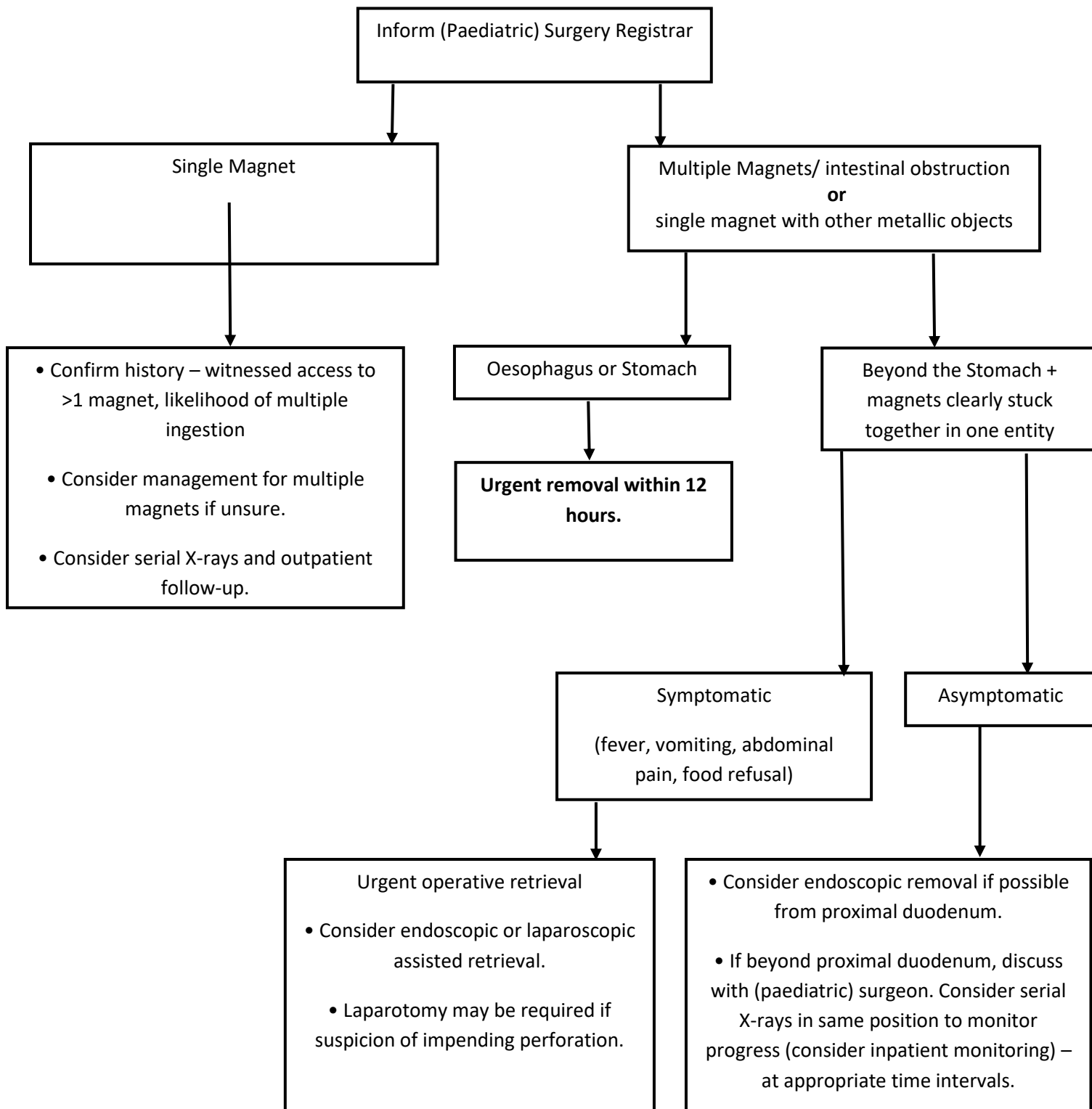


[Adapted from Litovitz et. al (2010) and cross-referenced with the Poison.org. (2018) 'NBIH Button Battery Ingestion Triage and Treatment Guideline'. 3, 7]

Management of ingested magnets

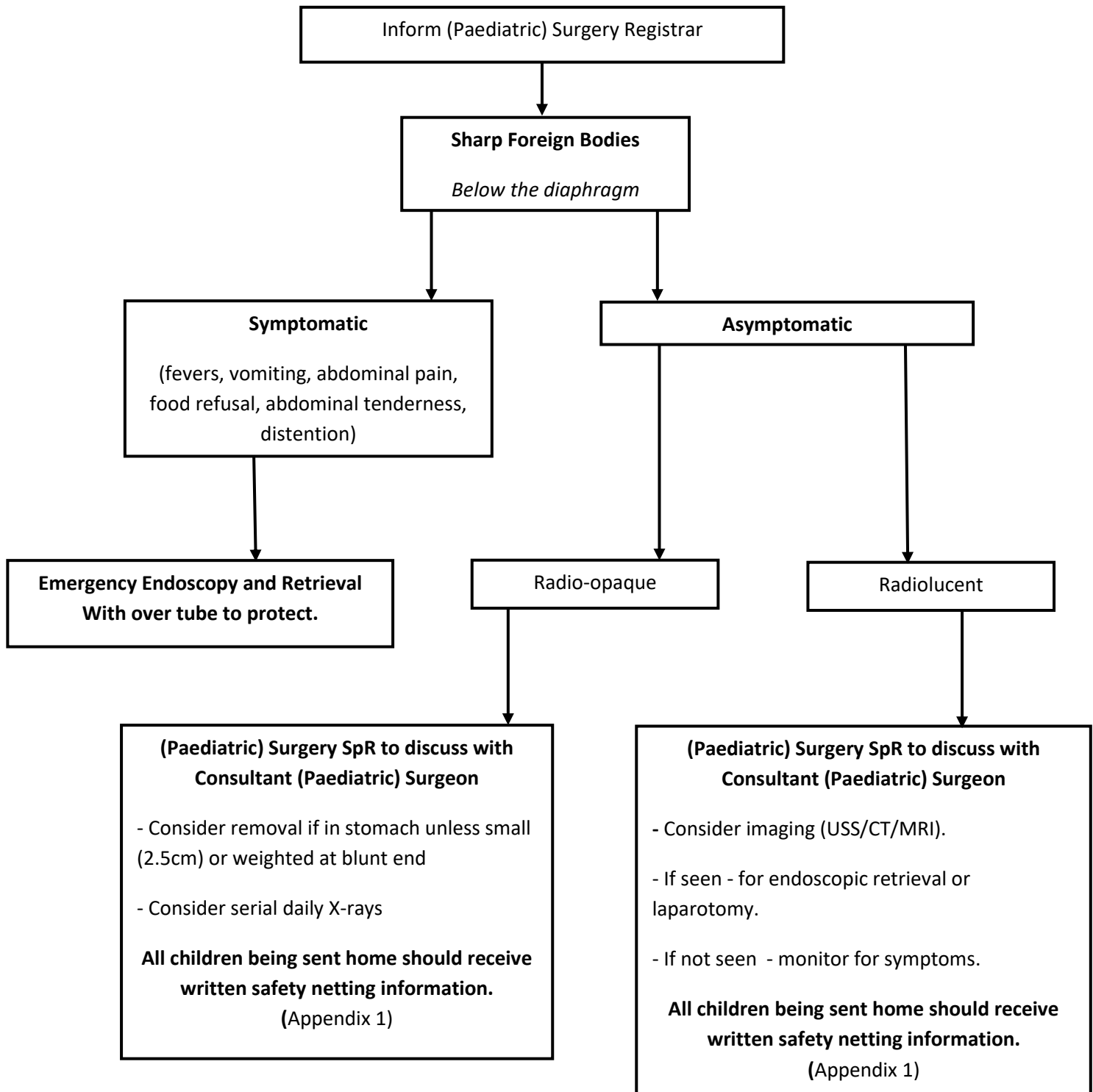
At risk: two magnets or metal object and magnet, developmental/psychological issues, delayed >12 hrs presentation

Magnets in two or more distinguishable groups need surgical referral



Management of ingested sharp objects below the diaphragm

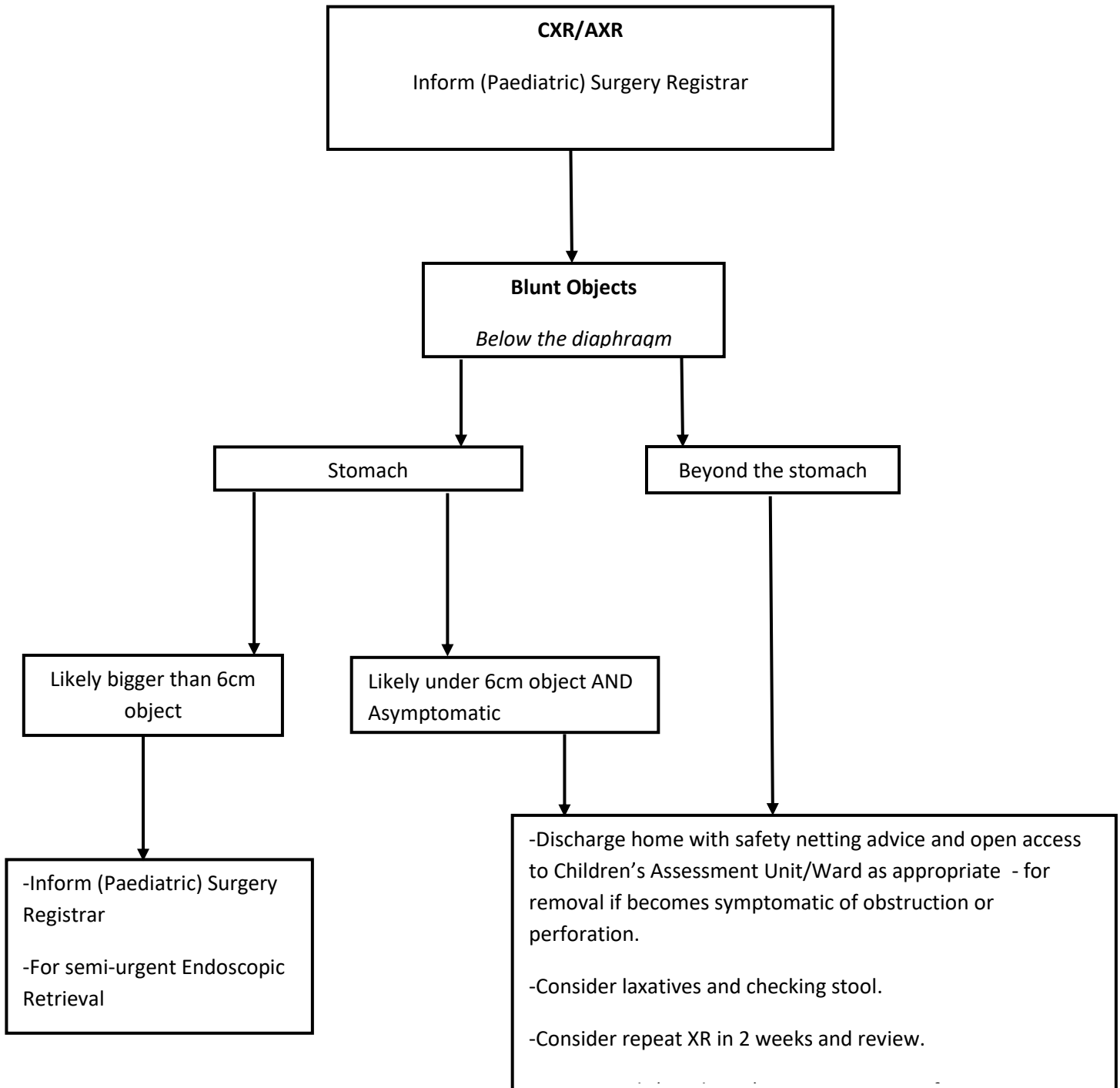
Always consider inhaled foreign body if airway symptoms, see Emergency management of life threatening ingestion page 3



Adapted from Kramer et. al (2018) report and proposed management algorithm for ingested sharp or pointed objects in children.

Management of ingested blunt objects below the diaphragm.

Always consider inhaled foreign body if airway symptoms, see Emergency management of life threatening ingestion page 3





Swallowed (ingested) Foreign Bodies in Children

Advice for parents & carers



East of England Surgery in Children ODN
(Hosted by Cambridge University Hospitals)

Swallowed (Ingested) Foreign Bodies in Children

Children sometimes swallow things such as coins, beads, magnets or batteries. These are known as foreign bodies. Most swallowed objects pass through the child's digestive system and out with the faeces (poo) without causing harm. However, some objects such as button batteries or magnets can be very dangerous when swallowed and require further investigation and management.

Signs and Symptoms of Swallowed Objects

Most children have no symptoms after swallowing an object. Sometimes the object can become stuck in the oesophagus (tube from the mouth to the stomach). This may cause:

- Trouble swallowing, or refusing food and drink
- Drooling
- Pain in the chest, neck or throat
- Noisy breathing (stridor) or coughing

Sometimes the object can become stuck in the stomach or intestines. This may cause:

- Vomiting
- Abdominal (tummy) pain
- Blood in their vomit or poo
- A fever (temperature)

Treatment in Hospital

Your child may have had an x-ray to look for the swallowed object. Some objects such as plastic, paper and wood do not show up on an x-ray. In many cases an x-ray is not needed.

Depending on what the object is, and where it is in the child's digestive system, the object may need to be removed. Some objects can harm the body and may need to be removed urgently. These include button batteries and magnets. Objects in the oesophagus (tube from the mouth to the stomach, 'food pipe') also sometimes need to be removed. Most objects however, will pass safely on their own.

Care at Home

Your child has been assessed as safe to go home after swallowing a foreign body, even though the object has not yet passed through them. Most children will pass the object without any further help. There is no need to examine your child's poo to find the object. Unless you have been told that your child needs a repeat x-ray, we do not need to follow up your child.

IMPORTANT**When to Return to the Emergency Department**

Very rarely objects can get stuck in the child's digestive system. Please return to the nearest hospital Emergency Department **IMMEDIATELY** if your child has any of the following:

- Trouble swallowing, or refusing food and drink
- Drooling
- Pain in the chest, neck or throat
- Vomiting
- Abdominal (tummy) pain
- Blood in their vomit or poo
- An unexplained fever in the next 7 days

Safety in the home

Button batteries (round, flat batteries often used in watches, car fobs, remote controls and toys) and high strength magnets can cause catastrophic injuries or death within hours if swallowed by a child. Ensure button batteries and high strength magnets are safely stored in your house, out of reach of your child.

This advice leaflet has been written by the East of England Surgery in Children Operational Delivery Network working party for the Foreign Body Guidelines which is made up of a range of clinical specialists.
Safety netting parent/carer information leaflet



EoE Foreign Body
Ingestion Parent & Ca

Include link to version on website

Appendix 2.

STOPP tool

Appendix 3 - References

NHS England Patient Safety Alert – Risk of death and serious harm from delays in recognising and treating ingestion of button batteries. [accessed: 02/12/2022] <https://www.england.nhs.uk/wp-content/uploads/2014/12/psa-button-batteries.pdf>

Kramer et. al (2018) report and proposed management algorithm for ingested sharp or pointed objects in children.

[Adapted from Litovitz et. al (2010) and cross-referenced with the Poison.org. (2018) ‘NBIH Button Battery Ingestion Triage and Treatment Guideline’. 3, 7]

Appendix 4 – Working Group

East of England Surgery in Children ODN Working Group

Name	Job role	Place of work
Grace Nisbet	East of England Fellow in Paediatric Anaesthesia	Great Ormond Street Hospital for Children NHS Foundation Trust
Jessica Bewick	Paediatric ENT ODN workstream lead	Cambridge University Hospitals NHS Trust
Francesca Wright	Practice Development Nurse	East of England Paediatric Critical Care ODN

References

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Exceptional Circumstances Form

Form to be completed in the **exceptional** circumstances that the Trust is not able to follow ODN approved guidelines.

Details of person completing the form:	
Title:	Organisation:
First name:	Email contact address:
Surname:	Telephone contact number:
Title of document to be excepted from:	
Rationale why Trust is unable to adhere to the document:	
Signature of speciality Clinical Lead:	Signature of Trust Nursing / Medical Director:
Date:	Date:
Hard Copy Received by ODN (date and sign):	Date acknowledgement receipt sent out:

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 Rosie Hospital
 Robinson Way Cambridge CB2 0SW