

Choking 2: foreign-body airway obstruction in infants and children

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Abstract Foreign-body airway obstruction (FBAO) is a clinical emergency that may be life threatening. Nurses should be confident in assessing the severity of airway obstruction, delivering interventions to relieve the airway obstruction and knowing when to call for assistance. This article outlines the procedure for assessing and managing infants and children with an FBAO, which differs from managing airway obstruction in adults.

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Between 2014 and 2016 there were 30 deaths from choking in infants and children aged <14 years in England and Wales (Office for National Statistics, 2017). The causes of foreign-body airway obstruction (FBAO) are split equally between food and small objects (ONS, 2017).

A quick response can prevent death from choking, so nurses should be able to recognise and respond to FBAO. Those working with families should also ensure parents know how to prevent, recognise and respond to it.

Signs of FBAO

Recognising the signs of FBAO in infants and children is the key to early, effective intervention. The context may provide important clues – for example, choking is common at mealtimes, or a child may have been playing with small objects that easily fit into the mouth. The most common signs and symptoms of choking are:

- A cough;
- Struggling to breathe or talk (cry in infants);
- Gagging – the infant/child may go silent and hold or point to their throat.

If the obstruction is only partial, the child may be able to vocalise/cry, cough and breathe (Maconochie et al, 2017).

Box 1. Severity of airway obstruction

Mild obstruction (effective cough)

The infant/child:

- Is crying/able to verbally respond to questions
- Has a loud cough
- Is able to take a breath before coughing and is fully responsive

Severe obstruction (ineffective cough)

Typically the infant/child:

- Is unable to vocalise
- Is quiet
- Has a silent cough
- Is unable to breathe
- Shows signs of cyanosis and decreasing levels of consciousness

Source: Maconochie et al (2017)

Other causes of airway obstruction in children – including laryngitis and epiglottitis – present with similar symptoms. The presence of a foreign body should be suspected if the symptoms have a sudden onset and there are no other systemic signs of illness such as pyrexia (Maconochie et al, 2017). If FBAO is suspected, it is important to assess the severity by establishing whether the infant/child has an effective or ineffective cough. In older children it is useful to ask “are you choking?”; their response will help distinguish between a mild or severe obstructive airway (Box 1).

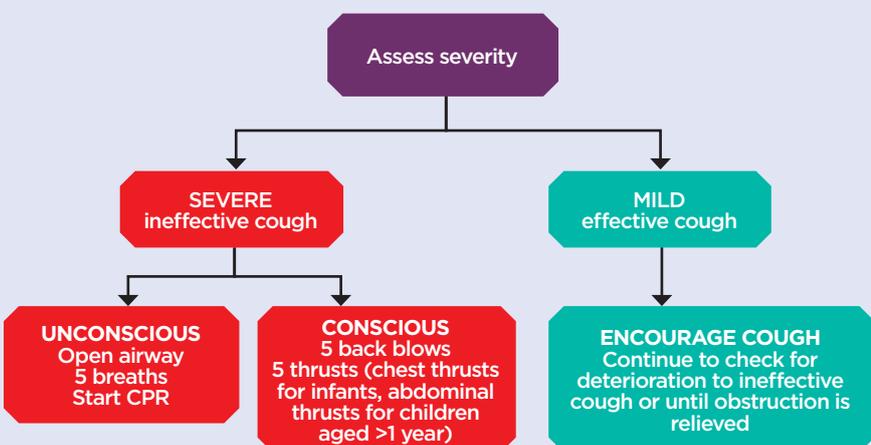
Treatment of FBAO in children

The following procedures follow the Resuscitation Council (UK)’s guideline on the management of choking in infants (<1 year of age) and children (aged >1 year) (Maconochie et al, 2017). An algorithm (Fig 1) provides quick guidance on the appropriate procedure. Box 2 indicates the advice nurses can offer parents to prevent, or minimise the risk of, choking.

Mild airway obstruction (effective cough) in infants and children

Coughing generates high and sustained airway pressures, and may expel a foreign body, so it is important to encourage the

Fig 1. Paediatric choking algorithm



CPR = cardiopulmonary resuscitation.

Source: Maconochie et al (2017)

Clinical Practice

Practical procedures

Fig 2. Back slaps in infants

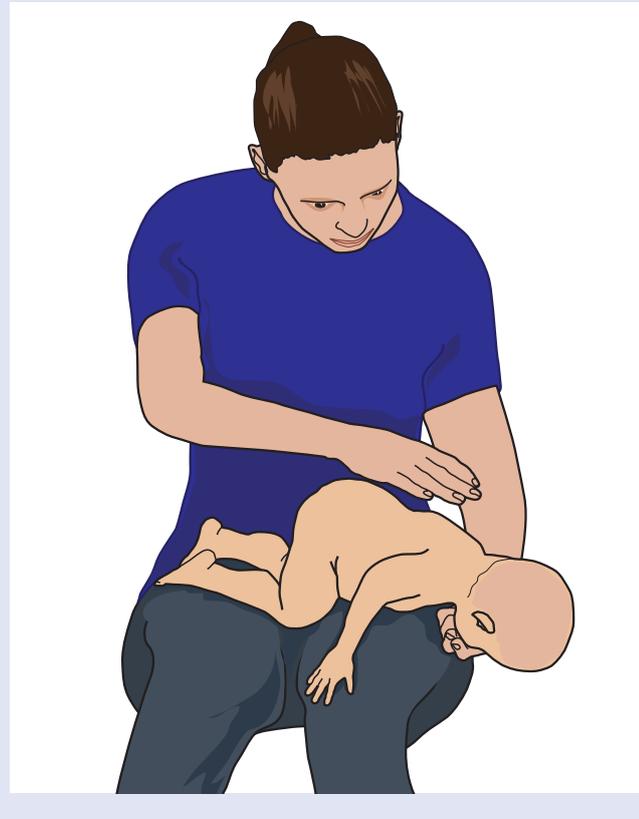
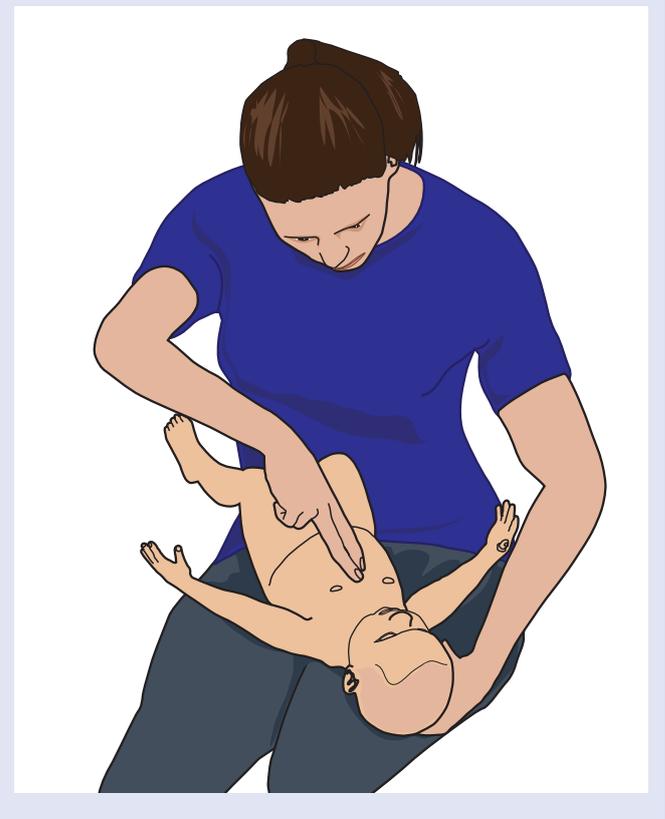


Fig 3. Chest thrust in infants



child to cough. Children with an effective cough will be able to cry or verbally respond to questions. In these situations, no external manoeuvres – such as back blows – are needed but close observation is required until the infant/child improves, as severe airway obstruction may develop.

Severe airway obstruction (ineffective cough) in infants (<1 year)

If the infant shows signs of severe airway obstruction:

- Call for help/pull the emergency buzzer immediately;
- Deliver up to five back blows (slaps) using the following procedure:
 - Place the infant in a prone position (usually over the lap) with the head downwards to enable gravity to help remove the foreign body (Fig 2);
 - Stabilise the infant's (floppy) head: place the thumb of one hand at the angle of the lower jaw and one or two fingers on the opposite side of the jaw (take care not to compress the soft tissues under the infant's jaw, as this could exacerbate the obstruction of the airway) (Fig 2);
 - Deliver up to five sharp back blows (slaps) with the heel of one hand in the middle of the back between the

shoulder blades (Fig 2). Following each back blow, check to see whether it has relieved the obstruction.

If back blows fail to dislodge the object and the infant is still conscious, deliver up to five chest thrusts (Fig 3):

- Turn the infant supine with head in a downwards position, using your arm to support the infant's back and your hand to support the head. Your thigh can provide additional support;

- Locate the 'landmark' for chest compressions – this is the lower sternum approximately a finger-width above the xiphisternum;
- Perform up to five chest thrusts – these are like chest compressions, but sharper in nature and delivered at a slower rate;
- Following each chest thrust, check to see whether the obstruction has been dislodged;
- If the obstruction remains, continue alternating up to five back blows with up to five chest thrusts.

Box 2. Prevention of choking in infants and children

Nurses should advise parents to:

- Always cut up food: infants and young children can choke on small, sticky or slippery foods
- Keep small objects out of reach: infants and small children examine objects by putting them in their mouths. Ensure small toys/objects such as building bricks, button batteries, coins and marbles are stored out of reach
- Sit children down to eat
- Always supervise infants and young children

Source: Bit.ly/ChokingPrevention

Severe airway obstruction

(ineffective cough) in children (>1 year)
If a child shows signs of severe airway obstruction:

- Call for help/pull the emergency buzzer immediately;
- Deliver up to five back blows (slaps) (Fig 4):
- Position the child with their head down (a small child may be placed over the lap, as described above). If this is not feasible, support the child into the leaning-forward position recommended for adults (Fig 5);
- Deliver up to five sharp back blows (slaps) with the heel of one hand in

Fig 4. **Back slaps in children**

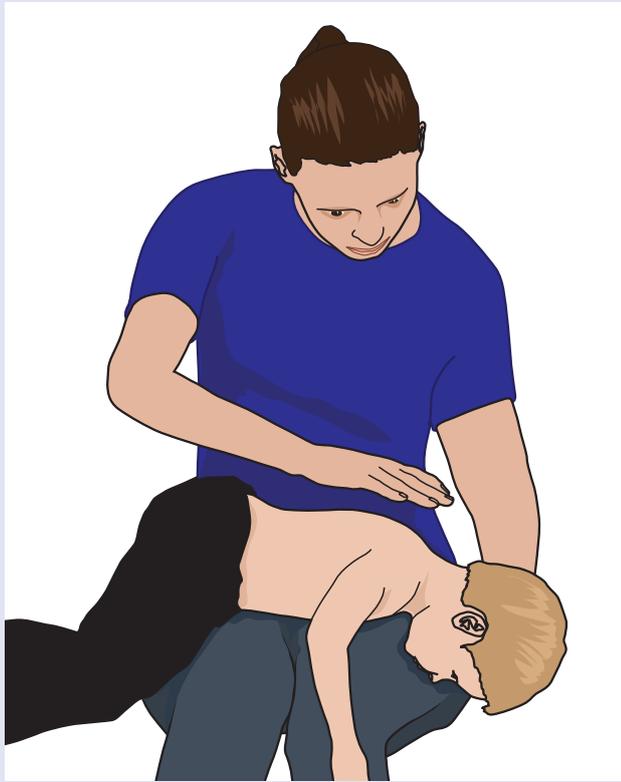


Fig 5. **Abdominal thrusts**



the middle of the back between the shoulder blades (Fig 4). Following each back blow, check to see whether the obstruction has been dislodged.

If back blows fail to dislodge the object and the child is still conscious, deliver up to five abdominal thrusts using the following procedure (Fig 5):

- Position yourself behind the child either standing or kneeling. Place your arms under the child's arms;
- Place a clenched fist between the umbilicus and xiphisternum;
- Hold the clenched fist with your other hand; pull sharply inwards and upwards;
- Deliver up to five abdominal thrusts. Following each abdominal thrust, check to see whether the obstruction has been dislodged;
- Take care not to apply pressure to the xiphoid process or the lower rib cage as this may cause abdominal trauma;

Professional responsibilities

These procedures should be undertaken only after approved training, supervised practice and competency assessment, and carried out in accordance with local policies and protocols.

- If the obstruction remains, continue alternating up to five back blows with up to five abdominal thrusts.

Management of the unconscious infant/child

- If the infant/child loses consciousness, carefully support them to a flat surface;
- Summon help if it is still not available (do not leave the infant/child);
- Open the infant's/child's mouth. If an obvious object is seen, attempt to remove it with a single finger sweep. Blind or repeated finger sweeps are not recommended because the object could be pushed deeper into the pharynx;
- Open the airway and attempt five ventilations. Determine the effectiveness of each ventilation – if the chest fails to rise, reposition the head;
- If the infant/child remains unresponsive, commence chest compressions immediately. It is advised for a lone rescuer to perform cardiopulmonary resuscitation for one minute before summoning assistance;
- Before repeating ventilations, check the mouth for the presence of an object and remove it if this is possible (see above) (Maconochie et al, 2017).

Aftercare

After successful treatment for a FBAO, the foreign body may still be present in the airways and can cause complications. Advise parents/carers that they should seek medical advice if the infant/child has dysphagia or a persistent cough, or complains of having something stuck in their throat.

As chest/abdominal thrusts and chest compressions can cause serious internal injury, patients must be examined for injuries after these interventions have been performed (Perkins et al, 2017). **NT**

References

- Maconochie I et al (2017) *Paediatric Basic Life Support*. London: Resuscitation Council (UK). [Bit.ly/RCUKPaediatricChoking](http://bit.ly/RCUKPaediatricChoking)
- Office for National Statistics (2017) *Number of Choking Deaths by Place of Occurrence and Age registered in England and Wales, 2014 to 2016*. [Bit.ly/Choking2016](http://bit.ly/Choking2016)
- Perkins G et al (2017) *Adult Basic Life Support and Automated External Defibrillation*. [Bit.ly/RCUKChokingResus](http://bit.ly/RCUKChokingResus)

CLINICAL
SERIES

Choking series

- Part 1:** Foreign-body airway obstruction in adults Dec 2018
- Part 2:** Foreign-body airway obstruction in infants and children Jan 2019