**THE MANAGEMENT OF**

Colic

Training for pharmacists and pharmacy assistants

Evidence-based pharmacy training to ensure you are aware of the latest advice and guidelines on colic.

This training programme has been developed in partnership with senior representatives from the healthcare community, and is accredited by the Royal Pharmaceutical Society (RPS).
Colic is a common and frustrating condition which may have a number of underlying causes.

Pharmacies are a typical first port of call for parents seeking advice on the condition. This training module will provide all members of the pharmacy team with helpful background information on colic along with evidence-based management techniques and treatments.
What is colic?

Colic is a common condition that affects otherwise healthy babies. It is thought to affect between 5% and 19% of infants, depending on the definition, although some studies suggest that the rate could be as high as 73%.

Normally starting soon after birth, colic affects girls and boys equally and typically lasts until the baby is around three or four months old.

The most common symptom of colic is excessive and inconsolable crying in a baby that appears healthy and well-fed. Crying caused by colic tends to be intense, severe and furious, and parents will be able to do little or nothing to alleviate the crying.

What causes colic?

The exact cause of colic is unknown, but research indicates that colic may have multiple causes.

Potential causes

Some babies with colic may not adequately metabolise lactose in milk due to being born with insufficient levels of lactase enzyme.

- The failure to break down lactose causes fermentation in the gut, which produces hydrogen and lactic acid.
- The hydrogen can then bloat the colon, while lactic acid can result in an influx of water, which further swells the gut.

Some emotionally sensitive babies may have problems ‘turning off’ their crying response.

- At four years of age, formerly colicky infants displayed more negative emotions, more negative moods during meals, and were more likely to report stomach-ache than those who had not experienced colic.

Women who smoke during pregnancy are twice as likely to have a colicky baby.

- Smoking may trigger a rise in the hormone motilin, leading to indigestion and colic.

Food protein allergy, food intolerances or both could contribute to colic in some children.

Psychosocial factors such as parental anxiety or poor infant-family relationships may also contribute to colic.

Maternal support during and after pregnancy appears to reduce the rates of infant colic. Specifically, high general social support during and after pregnancy were associated with a 45% and 49% reduction in reports of colic, while high levels of partner involvement with care was associated with a 40% reduction.

A baby with colic may also exhibit:

- Clenched fists, drawn-up knees, or an arched back
- Redness of the face
- Persistent crying that usually follows a pattern, such as being worse in the evening
- A failure to respond to methods that usually soothe distress

Normal Lactose Digestion

LACTOSE → LACTASE → GLUCOSE + GALACTOSE

Temporary Lactose Intolerance

LACTOSE → INSUFFICIENT LACTASE → BACTERIA FERMENT → ACIDS AND GASES

IRRITATION CAUSED
What is the impact of colic?

One study of parents’ experiences reported that “colic overshadows everything”. Mothers and fathers felt powerless, were overwhelmed by strong feelings, and neglected other needs.\(^\text{10}\)

The impact of colic on babies:

- The baby will cry excessively\(^2\) but in general there is no long-term impact on the baby. The baby will continue to feed and gain weight normally.
- Colic may, in serious cases, lead to failure to thrive, dehydration and electrolyte imbalance.\(^4\)

The impact on parents can be severe. Parents with a colicky baby are often distressed, stressed and tired and may fear that something is seriously wrong with their baby.\(^2\) An inconsolable infant crying for more than 20 minutes a day increases the risk of postpartum depressive symptoms four-fold; having an infant with colic doubles this risk.\(^11\)

Colic is deeply distressing for both parents and baby, and can undermine parent-child bonding as well as increasing the likelihood of postnatal depression and non-accidental injury.\(^6\)

"…crying for more than 20 minutes a day increases the risk of postpartum depressive symptoms four-fold…”

What is the role of pharmacy staff in treating colic?

A short semi-structured interview with the parent or carer helps ensure that a colicky baby is otherwise healthy.\(^2\) Parents should exclude common causes of crying that arise from discomfort, such as hunger or temperature.\(^12\)

The ‘rule-of-three’ can aid diagnosis.

- For at least three hours a day
- For at least three days a week
- For at least three weeks

Possible questions to ask parents:

- Is the baby eating normally?
- Is the baby growing well?
- Does the baby have a high temperature?
- Is the baby producing normal stools?
- Is the baby having colic-free periods?
- Does the crying follow a pattern?

If parents cannot provide clear feedback on the pattern of crying, consider asking them to complete a cry diary. A cry diary will help parents identify whether their baby’s symptoms have changed or new ones have emerged, and post-diagnosis, a cry diary can assess whether existing techniques need to be tried for longer, amended, or if it’s time to try something different.\(^2\)

A cry diary is a useful tool to offer parents, but the pharmacy should also offer advice on OTC and non-OTC treatments.

<table>
<thead>
<tr>
<th>Week</th>
<th>Description of Cry</th>
<th>Physical Symptoms</th>
<th>Time of Day</th>
<th>Before or After Feed</th>
<th>Length of Cry</th>
<th>Parent able to Comfort?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>Intense crying</td>
<td>Clenched fists</td>
<td>All afternoon</td>
<td>After</td>
<td>5 hours</td>
<td>Tried to burp and took for a long walk in pram</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Strong, angry</td>
<td>Red face, arched back</td>
<td>Morning</td>
<td>After</td>
<td>2 hours</td>
<td>Tried rocking but kept crying</td>
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<td>Wednesday</td>
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<td>Saturday</td>
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</tbody>
</table>
How is colic treated?

Parents may find some of the following non-pharmacological treatments helpful. Different babies may respond to different techniques:

- Pick up a crying baby – but avoid repeatedly picking up the baby as this may overstimulate them
- Wrap the baby securely in a blanket
- Movement – rocking over the parent’s shoulder, pushing around in a pram or driving
- Background noise – some parents find that the sound of a washing machine or vacuum cleaner soothes the baby
- Baby massage, which also helps bonding
- Burping after feeding; check feeding technique
- A warm bath

Several products are available that may help some children with colic. These have different modes of action, so babies may respond differently.

- Lactase drops. Lactase is an enzyme that helps break down the lactose in the milk making it more easily digestible
  - Lactase drops can be used until the baby is approximately 3–4 months old, by which time the baby’s digestive system will have matured
- Simeticone drops help release bubbles of trapped air in the baby’s digestive system
- Probiotics, in particular Lactobacillus reuteri
- Preparations containing fennel oil

Parents should seek further medical attention if the baby experiences any red-flag signs or symptoms such as:

- Weak, high-pitched, continuous cry (crying associated with colic is usually strong, with a normal pitch)
- Seems floppy when lifted
- Takes less than a third of their usual amount of fluids or has passed much less urine than usual
- Has vomited green fluid
- Passed blood in their stools
- Has a fever of ≥38°C (<three months of age) or ≥39°C (three to six months of age)
- Has a high temperature, but their hands and feet feel cold
- Has a bulging fontanelle
- Has experienced a seizure
- Has turned blue, blotchy or very pale
- Has breathing problems, such as breathing fast, or grunting while breathing, or they seem to be working harder than usual to breathe (for example, sucking in under the rib cage)
- Has any signs associated with meningitis, such as a purple-red rash
- Poor growth due to an inability to hold down enough food
- Irritability or refusing to feed due to pain
- Blood loss from acid burning the oesophagus

Differential diagnosis

The causes of colic are thought to be physiological/organic (gastrointestinal immaturity and cow’s milk allergy) or non-physiological/behavioural (parenting behaviours and response; temperament of the infant).

Considering the following may help the differential diagnosis:

- Bowel habits: Constipation can often cause crying
  - Solid, pellet like stools may indicate constipation
  - A baby should pass soft stools of about five cm in diameter
- Maternal diet: Some dietary components can pass through breast milk, including caffeine and some spices
- Symptoms of gastro-oesophageal reflux disease (GORD): Symptoms such as vomiting, coughing, irritability, poor feeding and blood in stools can be a sign of GORD
  - Nearly half of babies experience reflux in the first three months of life
  - GORD usually resolves between 12 to 24 months of age
  - The most common complication is oesophagitis

You can help to reassure anxious parents by:

- Giving the condition a name, ‘colic’
- Explaining that although the baby may appear to be in distress, the infant will continue to feed and gain weight normally
- Explaining that colicky symptoms will pass after a few months and usually colic does not have any long-term adverse effects on their baby’s health
- Ensuring parents understand that there is no cure for colic, so they may need to try a mixture of self-care techniques, treatments or changes to the maternal diet (e.g. a hypoallergenic diet)

Following diagnosis and initial treatment recommendations, encourage parents to return for regular reviews and to seek the advice of their GP if any of the following apply:

- The baby’s symptoms have not improved after four months
- The baby’s symptoms suddenly get worse
- The baby is failing to grow and develop at the expected rate
- The baby has developed GORD symptoms, other differential diagnoses or ‘red flag’ symptoms

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Assessment

1. Which of these is not a typical symptom of colic?
   a) Clenched fists, drawn-up knees or an arched back
   b) Redness of the face
   c) Vomiting
   d) Failure to respond to normal methods of soothing distress
   e) All of the above

2. Which of the following are possible causes of colic?
   a) Lactose sensitivity
   b) Emotional sensitivity
   c) Maternal smoking during pregnancy
   d) Food protein allergy
   e) All of the above could contribute

3. Which of the following is not a typical symptom of GORD?
   a) Coughing
   b) Constipation
   c) Poor feeding
   d) Blood in the stools
   e) All of the above

4. Which of the following indicates that the child should be referred to a GP?
   a) Weak, high-pitched, continuous cry
   b) Taking less than a third of their usual amount of fluids
   c) The baby has vomited green fluid
   d) Has a high temperature, but their hands and feet feel cold
   e) Has a bulging fontanelle
   f) All of the above

Correct answers: 1:c, 2:e, 3:b, 4:f

Record your learning

Once you have read through the training and completed the test on page 10, you can feel confident that you are providing the best possible advice for this common condition. For pharmacists and pharmacy technicians, by reflecting on your learning and putting your knowledge into practice you should have the evidence required to make a CPD entry. This will contribute towards the minimum of nine CPD entries per year, which reflect the context and scope of your job role. Use the questions below to help you reflect on what you have learnt and how it might affect your everyday work.

1. What did I learn that was new?
2. How have I put this into practice?
3. Do I need to learn anything else in this area?

Remember to record your learnings on the General Pharmaceutical Council website if you are registered (www.uptodate.org.uk).

Otherwise, it is good practice to record it in your ongoing learning and development folder:

• What did I learn that was new?
• How have I put this into practice?
• Do I need to learn anything else in this area?

7. Hart T et al. PGMN DOI: 10.1097/HPC.000000000000001270
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