Colic has been defined as “spasmodic contraction of smooth muscle causing pain and discomfort” in an otherwise healthy, thriving baby. In studies it has arbitrarily been defined as lasting three hours a day on more than three days a week for at least three weeks, and this is sometimes called Wessel’s colic.

Peak age of onset is five to six weeks. Classic signs include:

- Prolonged high pitched crying and an inconsolable baby
- Flushing of the face
- Drawing up of the legs
- Hands clenched into fists

Colic is often worse in the evenings. In some babies, it is worse after feeds but in others, feeding can be calming. Symptoms may appear to improve with flatus or bowel motions.

Colic can be terrible for parents too. They may feel distressed that they are unable to soothe their child, they may feel rejected and some will be frantic to find a cure.

Causes and risk factors

The causes of colic remain unclear. Almost all babies go through a period of fussing and crying that might be labelled as colic but only around 20 per cent meet the Wessel criteria.

In a systematic review Lucassen determined four main likely explanations. Where excessive crying is the predominant symptom, he suggested problems in the gut caused by allergy to cow’s milk, lactose intolerance or excess wind. A second possibility is a...
behavioural problem resulting from parental interaction. However, Lucassen also proposed that excessive crying is simply at the extreme end of normal. His fourth theory was that colic is a collection of aetiologically different entities difficult to determine clinically.

The incidence of colic is difficult to determine because descriptions are subjective. However, Talachian et al conducted a prospective study of 413 infants born in Tehran and determined that 20 per cent satisfied the Wessel criteria for infantile colic. They found no statistically significant links with gender, gestational age at birth, birth weight, method of delivery or feeding regimen although they did note higher rates of colic in first-born babies.

Colic and feeding

Other studies have shown that colic is more common in babies who are formula fed and that the risk of colic is 1.86 times higher in babies who receive no breast milk. Despite this, many breastfeeding mothers will prematurely cease breastfeeding, blaming the appearance and quantity of their milk as the cause of their baby’s discomfort. There is no evidence that stopping breastfeeding benefits colicky babies.

Colic and smoking

Søndergaard et al noted that smoking more than 15 cigarettes a day throughout pregnancy increased the risk of infantile colic and babies of mothers who smoke are twice as likely to experience symptoms of colic as babies of those who do not. Advising all parents to avoid exposing babies to any second hand smoke as a means of reducing risk of colic has good supporting evidence as well as being an excellent health promotion message.

Diagnosis and referral

Pharmacists should listen carefully to the symptoms described by the parent. They can ask specifically about the typical signs listed on p128. Colic is sometimes confused with gastro-oesophageal reflux (see Panel 1). Vomiting is not a symptom of colic. Neither is a raised temperature or diarrhoea. Pharmacists should refer to a GP if the baby appears unwell or dehydrated, is failing to gain weight or if there is any doubt over the diagnosis.

Dealing with colic

Treatments for colic have been influenced by Lucassen’s theories and include medication to relieve wind, milk formula with lower lactose, dietary modification and support for parents. Pharmacists can offer reassurance symptoms usually resolve by five months of age. Parents can be advised to look at feeding and behaviour modifications before turning to products from pharmacies. For breastfeeding mothers observation of feeding technique by a skilled breastfeeding worker may be help identify problems (see question in Panel 2).

Knowing that colic is not uncommon can also be reassuring but exhausted parents may choose to try an over-the-counter remedy in the hope that their baby responds; this should be an informed choice based on good evidence. Clinical Knowledge Summaries recommends one-week trials of interventions, such as simeticone drops or dietary modification, one at a time, and only continuing if there is a response. If there is no response another intervention can be tried. Different effective interventions may be combined.

If symptoms have not improved with treatment, a referral to the GP should be made.

Behavioural interventions

Behavioural interventions ranging from early response to symptoms to reducing stimulation did not provide evidence of benefit. Many parents place children in car seats and drive to settle symptoms, others carry their babies around. Some parents will rock their baby, pat his or her back to relieve wind, jiggle him or her up and down, and sing, stimulating all the senses simultaneously. However the greatest effect has been observed where stimulation has been reduced, for example, using only touch rather than touch, sound and movement. Health visitors can be a good source of support. Part of the primary care team, they are qualified nurses or midwives with further training in child health, health promotion and public health. In particular, they advise new parents on issues such as feeding, sleeping, safety, physical and emotional development, weaning and immunisation. Panel 3 (p131) contains health visitors’ tips for colic that pharmacists can use. When parents are at the end of their tether advice that it is quite in order to put a baby down and allow him or her to cry may remove the risk of injury.

Mothers of babies with colic are at increased risk of depression and may suffer a psychological loss in terms of the perfect baby they dreamt of in pregnancy.

Dietary modifications

Permanent dietary restrictions should not be undertaken without professional support and guidance. Eliminating cow’s milk protein from the diet can be effective in treating colic in babies with suspected cow’s milk protein allergy. In breastfed babies this entails the mother removing dairy products from her diet and in formula fed babies it involves the use of formulas with partially or fully hydrolysed proteins.

Most studies have been carried out with formula fed babies. When a whey hydrolysate formula was compared with a standard formula, the intervention was reported to result in a reduction in crying time of 63 minutes per day but the range was 1–127 minutes. Five of the 43 infants did not complete the trial.

Panel 1: Reflux in Infants

Reflux can result in periods of crying often lasting two hours but is accompanied by regurgitation of milk (possetting) or vomiting. Regurgitation per se in babies is normal, and at least 50 per cent of those younger than six months will regurgitate at least once a day. Careful exploration of feeding history and weight gain should be undertaken before diagnosis and treatment. Often parents simply need reassurance that possetting is normal and that despite the apparent large volume of milk some babies can vomit, if weight gain remains satisfactory that no treatment is necessary. For some babies gentle handling after feeds, not rushing to lay the infant down and using a muslin to protect clothing is all that is necessary. There is no evidence that putting a baby in a car seat or raising the head of the cot prevents reflux although these tactics are often used. Reflux is not a symptom of colic. Babies usually get reflux because the muscular valve closing off the entrance to the stomach is not fully developed, so when the stomach is full milk and acid can move up the oesophagus, causing discomfort. Reflux should stop with age. In a small percentage of babies, reflux is severe or persistent, affecting their well-being, and this may be diagnosed as gastro-oesophageal reflux disease (GORD).
For some babies, a low lactose formula may be beneficial, based on the assumption that colic is linked to lactose intolerance.

Soya milk is not recommended as a substitute milk for babies under six months due to its phytoestrogen and high sugar content and babies who are allergic to cow’s milk protein are likely to be allergic to soya protein as well.

Goats milk is not recommended as a milk suitable for babies under one year of age because it is nutritionally inadequate. In addition, there is no evidence that results in fewer cases of allergy than cow’s milk based formula. Lactose levels are similar to those in cow’s milk.

The National Institute for Health and Clinical Excellence maternal and child nutrition guidance (PH11 2008) states that there is insufficient evidence to support the use of hydrolysed formulas to prevent cow’s milk protein allergies. Its guideline on food allergy in children and young people (CG116 2011) recommends that a suspected food allergy is diagnosed and assessed either by skin prick testing or by a blood test for IgE antibodies. It should also be based on the results of an allergy-focused clinical history undertaken by a suitably trained healthcare professional.

Changing milk formulas There is no evidence of difference between any brands of formula milk so if the baby is otherwise thriving, there is no reason to switch. Some specialised formulas (eg, Cow & Gate Comfort, SMA LF, Aptamil Pepti or Aptamil Comfort) contain reduced lactose and partially digested whey proteins, based on the assumption that colic is linked with cow’s milk protein allergy. These formulas are probably best recommended by a health visitor.

There is a belief that probiotics may help reduce colic symptoms by improving gut motility and function. A small study in 2010 found that giving breastfed babies with colic a few drops of Lactobacillus reuteri daily significantly reduced crying. However, there is little evidence to support manufacturers’ claims of the benefit of adding probiotics to their milks. The Scientific Advisory Committee on Nutrition has stated that if any ingredient has been shown by independent research to be of advantage to formula fed infants it would, ethically, have to be added to all brands.

Pharmacy treatments Medication to treat colic is often based on sparse independent research. It is largely used due to the stress caused to parents of babies with colic. A Bandolier review in 2000 suggested that there were no evidence-based treatments for colic but a later review looked more favourably on lactase drops (see later).

In studies the antispasmodic medication to benefit in a condition that is not colic. However a three-week-old baby needs milk feeds and would not benefit from having any other liquid, which would limit the volume of milk drunk. In particular, star anise tea, a traditional colic remedy, is not recommended. In 2003 the US Food and Drug Administration warned against use of this remedy to benefit in a condition that is not colic. However a three-week-old baby needs milk feeds and would not benefit from having any other liquid, which would limit the volume of milk drunk. In particular, star anise tea, a traditional colic remedy, is not recommended. In 2003 the US Food and Drug Administration warned against use of this remedy.

I am exclusively breastfeeding my baby, who is six weeks old. It feels as if he’s crying every evening because he is hungry or that my milk is not good enough. Should I switch to formula milk? There is no evidence that switching to formula milk resolves the symptoms of colic and it could make them worse. Breasts produce milk as the baby feeds so even if you feel as if you have no milk left, it will be produced as your baby sucks. The nutrient profile of breast milk is specialised, with the right levels of protein, liquid, antibodies and other protective factors. Evidence shows that exclusively breastfeeding for around six months gives your baby the best possible start.

I’m bottle feeding my baby and think he’s getting a lot of wind because of the teat I’m using. Is that possible? You should use a teat that allows the milk to flow at a rate which suits your baby. Make sure you hold the bottle so that the baby sucks as little air as possible. It is worth trying another teat to see if there is one that suits your baby better. However if your baby pulls up his knees when he cries and struggles to pass wind these are signs of colic, not anything you are doing. Anti-colic bottles and teats are marketed. They aim to reduce the air a baby takes in during feeding.

My two-week old seems colicky and has very runny, yellow nappies that look frothy. I’m having to breastfeed about every hour and a half. Is this normal? Breastfed babies’ nappies are runnier than formula fed babies’ and are more yellow. If your baby is not well attached to your breast or you switch breasts before the first is properly drained there may be an imbalance in milk transfer — she may be getting a large volume of the lower caloric, lower fat breastmilk and may not reach the fattier milk at the end of the feed. This milk passes through her gut quickly, resulting in frothy motions and a baby who wants to feed frequently. Go to one of the local breastfeeding groups or see your health visitor to get some more help to improve your feeding technique.

My mother has told me that I should not eat sprouts or too much fruit if I am breastfeeding or my baby will get colic. Is this true? I want to eat healthily to produce the best milk. Sprouts and fruit do not cause colic. Some babies who have colic have an allergy to cow’s milk protein so avoiding dairy food in your diet for one to two weeks may help. If you do avoid dairy products you should take a calcium supplement and get advice from a dietitian.

My baby brings back a lot of her feeds several times a day. She isn’t putting on weight as she should be doing according to the lady at the clinic. Should I give her more milk at each feed or switch to a second milk? She seems to get a lot of wind too, which I thought was due to colic. If your baby is possetting and not gaining weight she may have reflux. You should talk to your GP before changing anything. It may be that she would be better off having smaller volumes of milk more frequently so that she is not over full when she finishes her bottles. Or she might be allergic to the cow’s milk protein in the formula. You need to have the baby checked to be sure of what is causing the problems.

I read on the internet that some herbal teas help with colic. Can I use these with my three-week-old? In a small study, giving babies a herbal tea containing extracts of chamomile, vervain, liquorice, fennel and balm mint in a sucrose solution helped to resolve the symptoms of colic. However a three-week-old baby needs milk feeds and would not benefit from having any other liquid, which would limit the volume of milk drunk. In particular, star anise tea, a traditional colic remedy, is not recommended. In 2003 the US Food and Drug Administration warned against use of this tea following adverse effects in 15 infants, ranging from seizures to vomiting, jitteriness and rapid eye movement. It did not identify the type of star anise associated with the illnesses but Japanese star anise (Illicium anisatum) is recognised as toxic. Chinese star anise (Illicium verum) is generally recognised as safe.
self-limiting does not justify the risks so it is no longer used in babies less than six months old. Colic should not be treated with antihistamines or painkillers.

CKS advises only considering trying medical treatments if parents feel unable to cope. Products that can be sold in pharmacies include simeticone, lactase and gripe water. Babies should be weaned off any effective treatment over a week after the age of three months or by six months of age at the latest.

Simeticone Simeticone (also called activated dimeticone) drops (eg, Infacol and Dentinox Infant Colic Drops) have not been shown to be effective in large trials although they are popular. Their proposed mechanism of action is to bind bubbles of wind together, aiding dispersal.

In a double-blind, randomised placebo-controlled crossover study of 26 infants simeticone treatment was considered more effective in 20 of the babies, reducing frequency and amplitude of crying attacks. However, the size of the study limits its value, as does the lack of detail on diagnosis of colic. A randomised double-blind, placebo-controlled, crossover study found that mothers of 54 per cent of infants (n=83) reported improvements during treatment periods but no statistically significant differences were noted and the authors concluded that simeticone is no more effective than placebo in the treatment of infantile colic, although it may be perceived as so by parents.

The direction for Infacol is to place one dropperful (0.5ml) onto the back of the baby’s tongue before each feed for several days. The manufacturer recommends that it should be given to the baby for several days to achieve the best results. The dose can be increased to two dropperfuls if the colic has not improved after three to four days. The liquid is orange flavoured and is free of sugar and colourants.

Directions for Dentinox drops are slightly different. They are administered with the supplied oral syringe (2.5ml) with or after each feed, up to six times a day. The liquid can be added to a bottle or given directly. The product contains sucrose.

**Panel 3: Strategies to Try**

- Sit the baby upright while feeding and wind him or her frequently.
- Hold the baby through the crying episode.
- Make white noise (eg, running water, vacuum cleaner) which may be soothing.
- Bathe the baby in warm water.
- Massage the baby (health visitors will know of local baby massage classes).
- Swaddle the baby.
- Carry the baby in a sling.

Both Infacol and Dentinox drops can be used from birth. Both manufacturers advise caution in babies being treated for a thyroid disorder.

Lactase Lactase drops (Colief) are recommended as a second-line treatment if simeticone has produced no improvement.

For breastfed babies, four drops of Colief are added to a small amount of expressed breastmilk, which is then given to the baby before breastfeeding. For bottlefed babies, four drops are added to newly made, warm formula (hot will destroy the enzyme), shaking the feed occasionally for half an hour before giving. If feed is to be made up in advance, two drops are added to the warm formula. This should be stored in a refrigerator for a minimum of four hours and used within 12 hours of make-up.

Kanabar et al conducted a study of 46 children. Total crying time was reduced in all 46 but reached statistical significance only in 32 compliant families. In previous studies with lactase there was no precubation of the milk. The size of the study and poor compliance leaves the results open to question as to the quality of evidence for widespread practice.

By four months old, a baby should be able to digest foods properly and parents can wean them off Colief by halving the number of drops, then using at alternate feeds, reducing to one feed per day before removal.

### Gripe water

Gripe water is a traditional remedy for colic, wind and other stomach ailments, and teething. Originally, ingredients could include alcohol, sugar, a bicarbonate and herbal extracts with reputed carminative properties. There is little evidence of efficacy for gripe water. It has been suggested that any soothing action is due to alcohol or sugar content.

Woodwards Gripe Water is probably the most popular. It contains dill seed oil and sodium hydrogen carbonate and is now alcohol and sugar free. It can be given up to six times a day during or after feeds. It is not suitable for infants under one month and should be discarded 14 days from opening.

### Counselling

Helping parents to cope with a baby suffering from colic is based initially on reassurance. They may have sought advice from friends and family and it is likely that they have been given lots of conflicting information.

Counselling, in its purest term, means listening empathetically rather than offering a solution. Pharmacists can listen to the concerns of parents and assure them that the symptoms of colic are not a reflection of the way they are caring for their baby. Talking to parents about how they feel about the incessant crying and their inability to soothe the baby may be as important as providing a pharmaceutical treatment.

 Mothers can be signposted to local support groups and to their health visiting or child and family team. Some parents may find contact with other parents whose babies have been difficult helpful.

### Signposting

- **Cry-Sis** (www.cry-sis.org.uk; 08451 228 667) is a national charity offering support for families with excessively crying, sleepless and demanding babies.
- The following organisations also offer support and counselling for parents of babies with colic: National Breastfeeding Helpline (0300 100 0210); Breastfeeding Network (0300 100 0210); NCT Breastfeeding Helpline (0300 330 0771); La Leche League Helpline (0845 120 2918); and Association of Breastfeeding Mothers (08444 122 949).

### References available online.

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**Reading is only one way to undertake CPD and the regulator will expect to see various approaches in a pharmacist’s CPD portfolio.**

1. Do you know your health visitors? Talk to them about what they advise for colic and why.
2. Visit www.pjonline.com/cpd /see how it should be done and watch videos on how to do baby massage.
3. Talk to your staff about colic. Do they know of strategies that might help?

Consider making this activity one of your nine CPD entries this year.