

# Paediatric Clinical Assessment Tools For Abdominal Pain



## Purpose of this Guideline

This Guideline is intended to act as a quick reference guide to some of the most common medical conditions for unscheduled healthcare attendances in children and young people (ages 0-16), which are: respiratory tract infections (croup/ bronchiolitis), asthma, fever, gastroenteritis and abdominal pain. It is aimed to assist primary care professionals when treating children and guide appropriate escalation. Parent / Carer information leaflets are included.

**Clinicians are expected to take this guideline fully into account when exercising their clinical judgement.** The guidance does not, however, override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient or carer.

When you feel a GP review in a specific time period is clinically appropriate, but falls outside of the 'in hours' GP service, please advise your patient/family to call NHS 111 (at an agreed time interval/ level of deterioration depending on your concerns) and advise that there is a 'predetermined plan to speak with an Out of Hours GP'.

Please provide your patient/family with a letter detailing your clinical findings and concerns to help the Out of Hours GP. The patient should also be given the appropriate Parent / Carer information leaflets.

The clinical assessment tools were arrived at after careful consideration of the evidence available including, but not exclusively SIGN, NICE Guidelines, Birmingham Children's Hospital guidelines, existing Birmingham Children's Hospital Information Leaflets, EBM date and NHS Evidence.

With thanks to the team at Gloucestershire CCG who produced the original Big 6 Pathways, on which this guideline is based.

# Normal Values

Normal values at different ages (APLS, Edition 5)

Age of child (years)	Under 1	1–2	2–5	5–12	Over 12
<b>Respiratory rate</b>	30–40	25–35	25–30	20–25	15–20
<b>Heart rate</b>	110–160	100–150	95–140	80–120	60–100
<b>Systolic blood pressure</b>	80–90	85–95	85–100	90–110	100–120

Calculations for commonly used emergency drugs (APLS, Edition 5)

	Formula	Maximum dose
<b>Weight (kg)</b>	<b>Child 0–12 months</b> Weight = $(0.5 \times \text{age in months}) + 4$	
	<b>Child 1–5 years</b> Weight = $(2 \times \text{age in years}) + 8$	
	<b>Child 6–12 years</b> Weight = $(3 \times \text{age in years}) + 7$	
<b>Energy (J)</b>	4 J/kg	150–200 J biphasic for first shock 150–360 J biphasic for subsequent shocks
<b>Tube size</b>	<b>Pre-term babies</b> 2.5 mm tube <b>Babies</b> usually 3 or 3.5 mm tube <b>Children &gt;1 year</b> Tube size = $(\text{age in years}/4) + 4$	
<b>Fluid Bolus (IV or IO)</b>	20 mL/kg of 0.9% saline <b>Exceptions:</b> Trauma/DKA/cardiac problems use 10 mL/kg of 0.9% saline	500 mL of 0.9% saline in trauma/ DKA/cardiac problems 1000 mL of 0.9% saline
<b>Lorazepam</b>	100 micrograms/kg (IV or IO)	Max single dose 4 mg
<b>Adrenaline (IV or IO)</b>	10 micrograms/kg (0.1 mL/kg of 1:10,000 strength)	Max single dose 1 mg
<b>Glucose 10% (IV or IO)</b>	2–5 mL/kg of 10% dextrose	150–160 mL of 10% dextrose single bolus

UK immunisation schedule

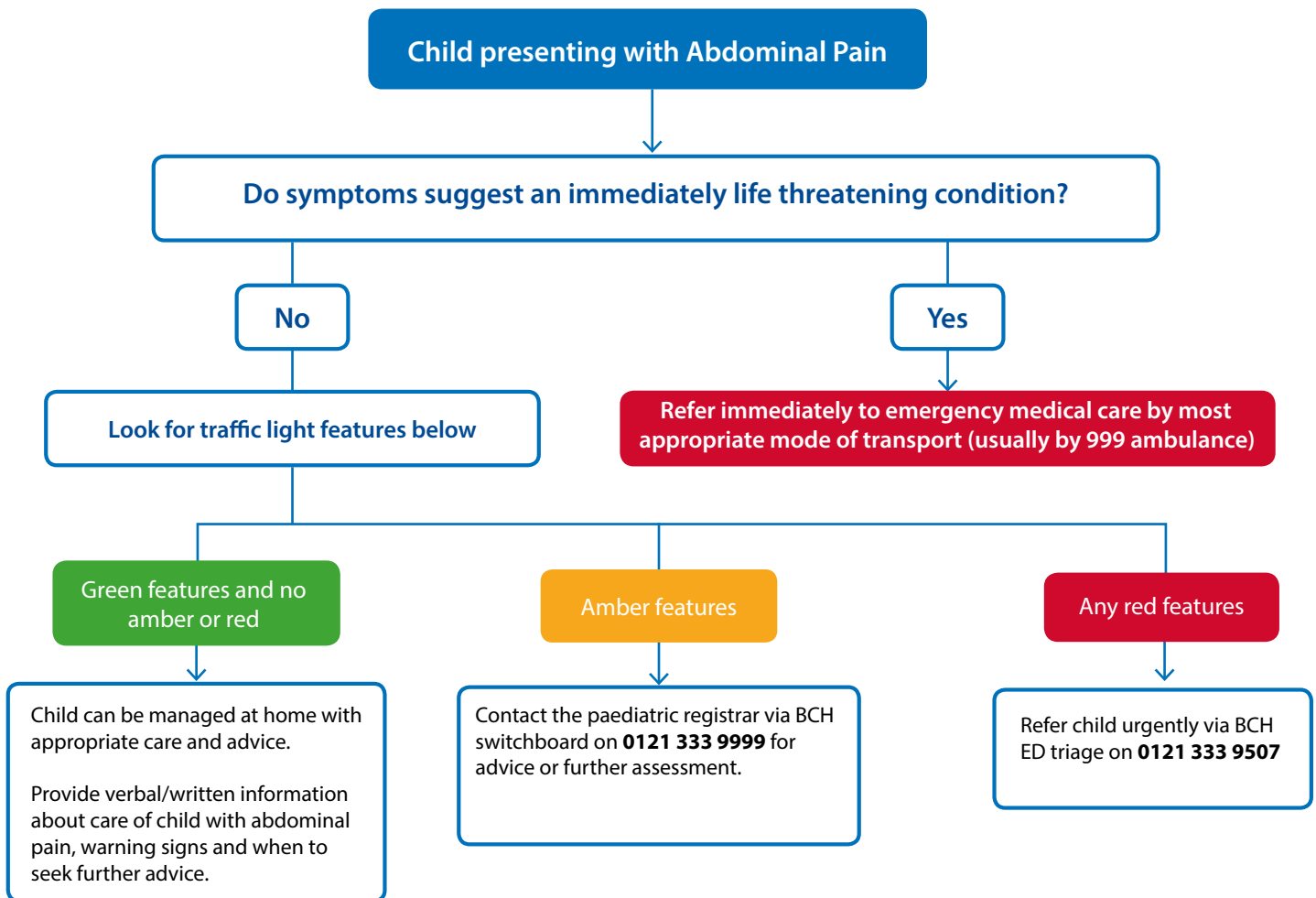
Age of child (months)	Rota virus (oral vaccine)	Diphtheria and tetanus	Pertussus	Polio	Hib	PCV	MenC	MMR	HPV	No. of injections
<b>2 months</b>	✓	✓	✓	✓	✓	✓				2
<b>3 months</b>	✓	✓	✓	✓	✓		✓			2
<b>4 months</b>		✓	✓	✓	✓	✓	✓			3
<b>12 months</b>					✓		✓			1

Neonatal Fluid Requirements

Age	Total volume of fluid required per day (mL/kg)
<b>Day 1</b>	60
<b>Day 2</b>	90
<b>Day 3</b>	120
<b>Day 4 to 28</b>	150

## Clinical Assessment Tool

### Abdominal Pain in children



Abdominal Pain Table 1: Traffic light system for identifying severity of illness

	Green - low risk	Amber - intermediate risk	Red - High Risk
<b>Activity</b>	Active/ responds normally to social cues		Drowsy/no response to social cues
<b>Respiratory</b>	Respiratory Rate Normal (RR) Infant 30 - 40 Pre-school 25-35 School age 20-25 SATS 95%		Respiratory rate over 60/minute SATS under 92%
<b>Circulation and Hydration</b>	CRT less than 2 seconds Heart rate normal Infant 120-170 Toddler 80-110 Pre-school 70-110 School age 70-110	CRT 2-3 seconds	CRT more than 3 seconds
<b>Other</b>		Fever (see separate guide) Abdominal distension Sexually active/missed period Palpable abdominal mass Localised pain Jaundice	Abdominal Guarding/ rigidity Bile (green) stained vomit Blood stained vomit "Red currant jelly" stool Trauma Acute testicular pain Severe/ increasing pain

NB. Broad guidance as differential diagnosis very wide depending on age.

Refer to page 1 for normal values

CRT - Capillary refill time

# Abdominal Pain

## Diagnostic Considerations in Abdominal Pain

### Common causes of abdominal pain by age

Under 2 years	2 to 12 years	12 to 16 years
Gastroenteritis	Gastroenteritis	Mesenteric adenitis
Constipation	Acute appendicitis	Acute appendicitis
Intussusception	Mesenteric adenitis	Menstruation
Infantile colic	Constipation	Mittelschmerz
UTI	UTI	Ovarian Cyst Torsion
Incarcerated Inguinal Hernia	Pneumonia	UTI
Trauma	Diabetes	Pregnancy
Pneumonia	Testicular torsion	Ectopic Pregnancy
Diabetes	Onset of menstruation	Testicular Torsion
	Functional abdominal pain	Functional abdominal pain
	Trauma	Pneumonia
		Diabetes

Diagnosis to be considered	Symptoms and signs in conjunction with abdominal pain
<b>Gastroenteritis</b>	<ul style="list-style-type: none"> <li>• Vomiting</li> <li>• Diarrhoea (can also occur in other conditions e.g. intussusception, pelvic appendicitis, pelvis abscess and inflammatory bowel disease)</li> </ul>
<b>Intestinal obstruction e.g. Intussusception or volvulus</b>	<ul style="list-style-type: none"> <li>• Bile stained vomiting</li> <li>• Colicky abdominal pain</li> <li>• Absence of normal stools / flatus</li> <li>• Abdominal distension</li> <li>• Increased bowel sounds</li> <li>• Visible distended loops of bowel</li> <li>• Visible peristalsis</li> <li>• Scars</li> <li>• Swelling at the site of hernial orifices and of the external genitalia</li> <li>• Stool containing blood mixed with mucus</li> </ul>
<b>Infective diarrhoea</b>	Blood mixed with stools - ask about travel history and recent antibiotic therapy
<b>Inflammatory bowel disease</b>	<ul style="list-style-type: none"> <li>• Blood in stool</li> <li>• Weight loss</li> <li>• Waking at night to open bowels</li> </ul>
<b>Midgut volvulus (shocked child)</b>	Blood in stool
<b>Henoch schonlein purpura</b>	<ul style="list-style-type: none"> <li>• Blood in stool</li> <li>• Purpuric rash</li> </ul>
<b>Haemolytic uremic syndrome</b>	Blood in stool
<b>Anorexia nervosa</b>	Loss of appetite

# Abdominal Pain

<b>Lower lobe pneumonia</b>	<ul style="list-style-type: none"> <li>• Fever</li> <li>• Cough</li> <li>• Tachypnoea</li> <li>• Desaturations</li> </ul>
<b>Poisoning</b>	Ask about history of possible ingestions and what drugs and other toxic agent are available at home
<b>Irreducible inguinal hernia</b>	Examine inguinoscrotal region
<b>Tortion of the testis</b>	This is a surgical emergency and if suspected the appropriate paediatric surgeon should be consulted immediately.
<b>Jaundice</b>	Hepatitis may present with pain due to liver swelling
<b>Urinary Tract Infection</b>	Routine urine analysis for children presenting with abdominal pain
<b>Bites and stings</b>	Ask about possibly bites and stings. Adder envenomation can result in abdominal pain and vomiting.
<b>Peritonitis</b>	<ul style="list-style-type: none"> <li>• Refusal / inability to walk</li> <li>• Slow walk / stooped forward</li> <li>• Pain on coughing or jolting</li> <li>• Lying motionless</li> <li>• Decreased / absent abdominal wall</li> </ul>
<b>Constipation</b>	<ul style="list-style-type: none"> <li>• Infrequent bowel activity</li> <li>• Foul smelling wind and stools</li> <li>• Excessive flatulence</li> <li>• Irregular stool texture</li> <li>• Passing occasional enormous stools or frequent small pellets</li> <li>• Withholding or straining to stop passage of stools</li> <li>• Soiling or overflowing</li> <li>• Abdominal distension</li> <li>• Poor appetite</li> <li>• Lack of energy</li> <li>• Unhappy, angry or irritable mood and general malaise.</li> </ul>
<b>If patient is post-pubertal female</b>	<ul style="list-style-type: none"> <li>• Suggest pregnancy test</li> <li>• Consider ectopic pregnancy, pelvic inflammatory disease or other STD.</li> <li>• Mittelschmerz</li> <li>• Torsion of the ovary</li> <li>• Pelvic inflammatory disease</li> <li>• imperforate hymen with hydrometrocolpos.</li> </ul>
<b>Known congenital or pre-existing condition</b>	<ul style="list-style-type: none"> <li>• Previous abdominal surgery (adhesions)</li> <li>• Sickle Cell anaemia</li> <li>• Nephrotic syndrome (primary peritonitis)</li> <li>• Mediterranean background (familial Mediterranean fever)</li> <li>• Hereditary spherocytosis (cholethiasis)</li> <li>• Cystic fibrosis (meconium ileus equivalent)</li> <li>• Cystinuria</li> <li>• Porphyria</li> </ul>

Information for Parents / Carers:

## Caring for your child with Abdominal (Tummy) Pain



## About abdominal (tummy) pain in children

There are many health problems that can cause tummy pain for children, including:

- Bowel (gut) problems - constipation, colic or irritable bowel
- Infection - gastroenteritis, infections in other parts of the body like the ear, chest kidney or bladder.
- Food related problems - too much food, food poisoning or food allergies
- Problems outside the abdomen - muscle strain or migraine
- Surgical problems - appendicitis, bowel obstruction or intussusception (telescoping of part of the gut). Suspect appendicitis if the pain is low on the right side, your child walks bent over, won't hop or jump, and prefers to lie still.
- Period pain- some girls can have pain before their period starts.
- Poisoning- such as spider bites, eating soap or smoking.
- The most common cause of recurrent tummy ache is stress. Over 10% of children have this. The pain occurs in the pit of the stomach or near the belly button. The pain is mild but real.

## How can I look after my child?

- Reassure the child and try to help them rest.
- If they are not being sick, try giving them paediatric paracetamol oral suspension.
- Avoid giving them aspirin.
- Help your child drink plenty of clear fluid such as cooled boiled water or juice.
- Do not insist that your child should eat, if they feel unwell.
- If your child is hungry, offer food such as crackers, rice, bananas or toast.
- Place a gently heated wheat bag on your child's tummy or run a warm bath for them.

## Things to remember

- Many children with stomach pain get better in hours or days without special treatment and often no causes can be found.
- Sometimes the cause becomes more obvious with time which enables appropriate treatment to be started.
- If pain or other problems persist, see your doctor.



## The tumbler test

If a rash appears, do the tumbler test. Press a glass tumbler firmly against the rash. If you can see spots through the glass and they do not fade, this is called a 'non blanching rash'. If this rash is present, seek medical advice urgently to rule out serious infection. The rash is harder to see on dark skin so check paler areas such as the palms of hands and soles of feet.

## Abdominal pain Advice Guide:

### How is your child?



**Red**

If your child

- Becomes unresponsive
- Has rash that does not disappear using the tumbler test on this page
- Has green or blood stained vomit
- Is increasingly sleepy
- Has severe or increasing pain

**You need urgent help**

Please phone 999 or go to the nearest Accident and Emergency



**Amber**

If your child has

- Increased thirstiness
- Weeing more or less than normal
- Pain not controlled by regular painkillers
- Swollen tummy
- Yellow skin or eyes
- Blood in their poo or wee
- Not being active or mobile as usual

**You need to contact a doctor or nurse today**

Please ring your GP surgery or call NHS 111 - dial 111



**Green**

- If none of the above features are present.

**Self care**

Using the advice overleaf you can provide the care your child needs at home



## Some Useful Phone Numbers

**GP Surgery** (make a note of the number here)

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**NHS 111 - Dial 111**  
(available 24hrs - 7 days a week)

**GP Out of Hours Service - appointments booked via NHS 111**  
(Open from 6:30pm - 8:30am, 7 days a week)

**For online advice:**  
**NHS Choices** [www.nhs.uk](http://www.nhs.uk)  
(available 24hrs - 7 days a week)

## Urgent Care Centre

### **Warren Farm Urgent Care Centre**

Warren Farm Road, Birmingham, West Midlands, B44 0PU  
8.00am-8.00pm

### **Erdington Health and Wellbeing Walk In Centre**

196 High Street, 1st Floor, Erdington, Birmingham, B23 6SJ  
8.00am-8.00pm

### **Washwood Heath Urgent Care Centre**

Clodeshall Road, Washwood Heath, Birmingham, West Midlands, B8 3SN  
9.00am-9.00pm

### **The Hill Urgent Care Centre**

Sparkhill Primary Care Centre, 856 Stratford Road,  
Sparkhill, Birmingham, B11 4BW  
8.00am-8.00pm

## **South Birmingham GP Walk In Centre**

0121 415 2095

15 Katie Road, Selly Oak, Birmingham, B29 6JG.

8.00am-8.00pm

## **Birmingham NHS Walk In Centre**

0121 255 4500

Lower Ground Floor, Boots The Chemists Ltd,  
66 High Street, Birmingham, West Midlands, B4 7TA

Mon-Fri: 8.00am – 7.00pm (last patient seen at 6:30pm)

Sat: 9.00am – 6.00pm (last patient seen at 5:30pm)

Sun: 1.00am – 4.00pm (last patient seen at 3:30pm)

## **Solihull UCC**

Solihull Hospital, Lode Lane, Solihull, B91 2JL

8.00am-8.00pm

## **Summerfield GP and Urgent Care Centre**

Summerfield Primary Care Centre, 134 Heath Street,  
Winson Green, Birmingham, B18 7AL.

8.00am-8.00pm

**If you require an interpreter, inform the member of staff you are speaking with.**

## Data Protection

### Looking after and sharing information about your child

We have a duty of care to help patients and families understand how information about them is kept and shared and we include the following information in all our patient leaflets:

Information is collected about your child relevant to their diagnosis, treatment and care. We store it in written records and electronically on computer. As a necessary part of that care and treatment we may have to share some of your information with other people and organisations who are either responsible or directly involved in your child's care. This may involve taking your child's information off site. We may also have to share some of your information for other purposes, such as research etc. Any information that is shared in this way will not identify your child unless we have your consent. If you have any questions and/or do not want us to share that information with others, please talk to the people looking after your child or contact PALS (Patient Advice and Liaison Service) on 0121 333 8403.

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### **Birmingham Children's Hospital NHS Foundation Trust**

Steelhouse Lane Birmingham B4 6NH

Telephone 0121 333 9999

Fax: 0121 333 9998

Website: [www.bch.nhs.uk](http://www.bch.nhs.uk)

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