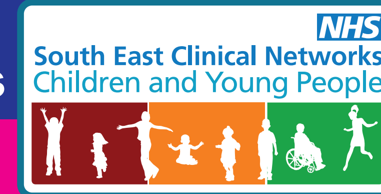
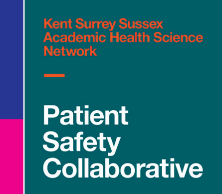
Diarrhoea and/or Vomiting (Gastroenteritis) Pathway

December 2016
Kent, Surrey & Sussex Version

Clinical Assessment / Management Tool for Children Younger than 5 years with suspected Gastroenteritis





Management - Acute Setting

Think Sepsis

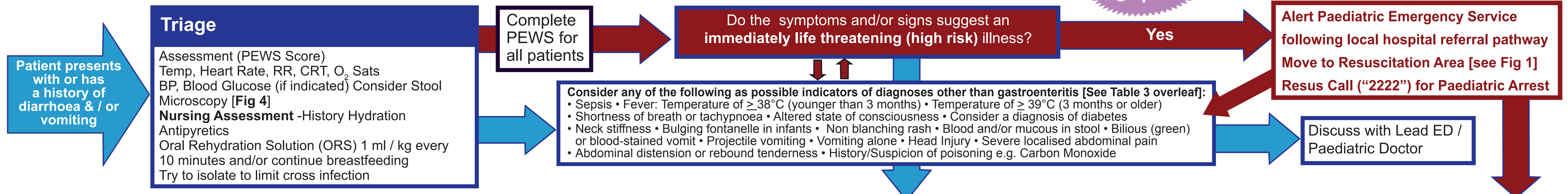


Table 1

Clinical Findings	Green - low risk	Amber - intermediate risk	Red - high risk
Age	Over 3 months old	Under 3 months old	
Behaviour	• Responds normally to social cues • Content / smiles • Stays awake / awakens quickly • Strong normal crying / not crying	• Altered response to social cues • No smile • Decreased activity • Irritable • Lethargic • Appears unwell	• No response to social cues • Unable to rouse or if roused does not stay awake • Appears ill to a healthcare professional • Weak, high pitched or continuous cry
Skin	• Normal skin colour • Normal turgor • Warm extremities	• Normal skin colour • Warm extremities • Reduced skin turgor	• Pale / mottled / ashen blue • Cold extremities
Hydration	• Not dehydrated • CRT < 2 secs • Moist mucous membranes (except after a drink) • Normal urine output • Fontanelle normal	• Clinically dehydrated • CRT 2-3 secs • Dry mucous membranes (except for mouth breather) • History of reduced urine output or fewer wet nappies than usual • Sunken fontanelle	• Clinical Shock • CRT> 3 secs • History of significant reduction in output or dry nappies > 18 hours • Markedly sunken fontanelle
Respiratory Measured at rest for 30 seconds	• Normal breathing pattern and rate**	• Normal breathing pattern and rate**	• Abnormal breathing / tachypnoea**
Heart Rate	• Heart rate normal • Peripheral pulses normal	• Mild tachycardia* • Peripheral pulses normal	• Severe tachycardia*
Blood pressure	• Normal*	• Normal*	• Hypotensive*
Eyes	• Normal Eyes • Not sunken	• Sunken Eyes	Sunken eyes

Record your findings.
GMC Best Practice recommendation http://bit.ly/1DPXI2b

For all patients, continue monitoring following PEWS Chart recommendation

Green Action

To avoid dehydration (see patient advice sheet)
Continue with breast and / or bottle feeding
Encourage fluid intake, little and often
Children at increased risk of dehydration [see Fig 5 overleaf]
Confirm they are comfortable with the decisions / advice given and then think “Safeguarding” before sending home.
See [Fig 4] for Stool sample microscopy indications

Amber Action

Consider Blood Glucose
Advice from Lead ED / Paediatrician-On-Call* should be sought and/or a clear management plan agreed with parents.
Begin management of clinical dehydration algorithm [see Fig 3]
See [Fig 4] for Stool sample microscopy indications

Urgent Action

Immediate Paediatric Assessment
If clinical shock suspected or confirmed follow management plan [see Fig 1]
See [Fig 4] for Stool sample microscopy indications

Fig 1 Management when clinical shock suspected
• Give 20 ml/kg 0.9% Sodium Chloride First Bolus
➡ Reassess
➡ Give 20 ml/kg 0.9% Sodium Chloride as First Bolus and alert **Paediatric Emergency Service**

Fig 2 IV Fluid Therapy
Only use IV fluid therapy if in shock or red flag patient and deteriorates despite ORS or persistently vomits ORS therapy. Always use isotonic solutions. Use maintenance plus replacement 50 – 100 mls/kg over 48 hours dependent on severity.

Fig 3 Management of Clinical Dehydration
• Increase oral fluid intake to 2 mls/kg every 10 mins with an oral rehydration solution (ORS) aiming for 50 ml/kg over 4 hours
• Continue breast / bottle feeding, little and often is best
• Give ORS via nasogastric tube if the child is unable to drink or vomits persistently
• A&E - Refer to Paediatrics if after 2 hours and child is still amber
• Consider use of Ondansetron as per local policy

Fig 4 Stool Microscopy perform if:
• Suspected septicaemia
• Or immunocompromised
• Or blood / mucous in stools
• Or history of travel abroad
• Or no improvement in diarrhoea after 7 days

Table 2 Normal Paediatric Values:

(APLS†)	Respiratory Rate at rest: [b/min]	Heart Rate [bpm]	Systolic Blood Pressure [mmHg]
< 1 year	30 - 40	110 - 160	70 - 90
1-2 years	25 - 35	100 - 150	80 - 95
> 2-5 years	25 - 30	95 - 140	80 - 100

†Advanced Paediatric Life Support The Practical Approach Fifth Edition Advanced Life Support Group Edited by Martin Samuels; Susan Wieteska Wiley-Blackwell / 2011 BMJ Books.

* Please see Normal Paediatric Values in Table 2 above.

First Draft Version: May 2011 Subsequent Versions have been published in Nov 2013, Jan 2015 and May 2015. Date of this Refreshed Version: Dec 2016 Review Date: Dec 2018

This guidance is written in the following context:
This document was arrived at after careful consideration of the evidence available including but not exclusively NICE, SIGN, EBM data and NHS evidence, as applicable. Healthcare professionals are expected to take it 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 and / or carer.

Supporting Information

December 2016
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NHS South East Clinical Networks Children and Young People

Kent Surrey Sussex Academic Health Science Network Patient Safety Collaborative

Table 3

Differential Diagnosis	Most important features
Sepsis	Sepsis - fever (especially >38°C in under 3 month old infants; >39°C in 3-6 month infants); tachypnoea/ tachycardia; non blanching rash; altered conscious level
Appendicitis	Fever, anorexia, nausea/vomiting, migration of pain from central to RIF (see Appendicitis score – **Table 4**)
Constipation	Positive bowel habit history. Pain mainly left sided/ supra pubic. If acute look for organic causes (ie obstruction)
Diabetic ketoacidosis	Known diabetic or history of polydipsia/ polyuria and weight loss, BM >11, metabolic acidosis (pH< 7.3 / HCO3 <15) and blood ketones > 3 or ketone sticks more than 2+. (tests where available)
HUS	Unwell child with bloody diarrhoea and triad of: anaemia, thrombocytopenia & renal failure
Infantile reflux / cows milk protein intolerance (CMPI)	Infant with inconsolable crying, drawing up of knees, back arching and sometimes blood in stools (CMPI) For more detail on the Infant Feeding pathways please see website or email: CWSCCG.cypSECpathways@nhs.net
Infective Diarrhoea	Blood or mucous in stools; foreign travel
Intussusception	Mostly < 2 yrs, pain intermittent with increasing frequency, vomits (sometimes with bile), drawing up of knees, 'red currant jelly' stool (late sign)
Irreducible hernia	Painful enlargement of previously reducible hernia +/- signs of bowel obstruction
Meckel's diverticulum	Usually painless rectal bleeding. Symptoms of intestinal obstruction. Can mimic appendicitis
Neurological Pathology	Bulging fontanelle; head injury; altered conscious level; neck stiffness; headache
Pyloric Stenosis	Projectile vomiting; worsening vomiting; clinically dehydrated(sunken fontanelle, dry nappies + mucous membranes; lethargy); weight loss; usually presents between 3-6 weeks old
Surgical Abdomen	Localised abdominal pain; abdominal distention; rebound tenderness; bilious(green) vomitus
Urinary Tract Infection (UTI)	Fever, dysuria, loin/ abdominal pain, urine dipstick positive for nitrites/ leucocytes. Follow local guidelines.

Fig 5 Children at increased risk of dehydration are those:

- Aged <1 year old (and especially the < 6 month age group)
- Low birth weight
- Has had six or more episodes of diarrhoea in the past 24 hours
- Have vomited three times or more in the last 24 hours
- Have not taken or have not been offered fluids before presentation
- Infants who have stopped breastfeeding during the illness
- Children with malnutrition or faltering growth

Table 4 - Appendicitis Score

Sign / symptom	Scoring
Fever (axillary temp > 38°C)	1
Anorexia	1
Nausea or vomits	1
Pain on cough/ percussion or hopping	2
RIF tenderness	2
Migration of pain (from central to RIF)	1
WCC > 10,000 (where available)	1
Neutrophils > 7,500 (where available)	1

Likelihood of appendicitis increase with total score (Maximum 10 points). When total score is <3 then appendicitis is unlikely and if it is > 6 appendicitis is likely. In borderline cases abdominal imaging (USS, CT) may be helpful after discussion with surgeon and radiologist - Samuel et al, J of Paed Surgery 2002, 6: 877 and Goldman et al, J Pediatr,2008,153:278

Dear Colleague,

This has been produced by local clinical groups including representatives from acute, community and primary care as well as parents, education and social care and based on local independent clinical consensus. In particular we would also like to thank Wessex SCN and Paediatrics and Emergency Medicine colleagues for their support in finalising these versions for circulation.

To feedback or for further information / copies (Please Quote Ref: **DV3**) please email: CWSCCG.cypSECpathways@nhs.net

Yours sincerely

The Network

Glossary of Terms and Abbreviations

APLS	Advanced Paediatric Life Support
B/P	Blood Pressure
CPD	Continuous Professional Development
CRT	Capillary Refill Time
ED	Hospital Emergency Department
HR	Heart Rate
O_2 SATS	Oxygen Saturation in Air
PEWS	Paediatric Early Warning Score
RR	Respiratory Rate

Where can I learn more about paediatric assessment?

We also recommend signing up to the online and interactive learning tool **Spotting the Sick Child**. It is free of charge. It was commissioned by the Department of Health to support health professionals in the assessment of the acutely sick child. It is also CPD certified.

www.spottingthesickchild.com

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Based on: Diarrhoea and vomiting in children under 5 2009 NICE clinical guideline 84