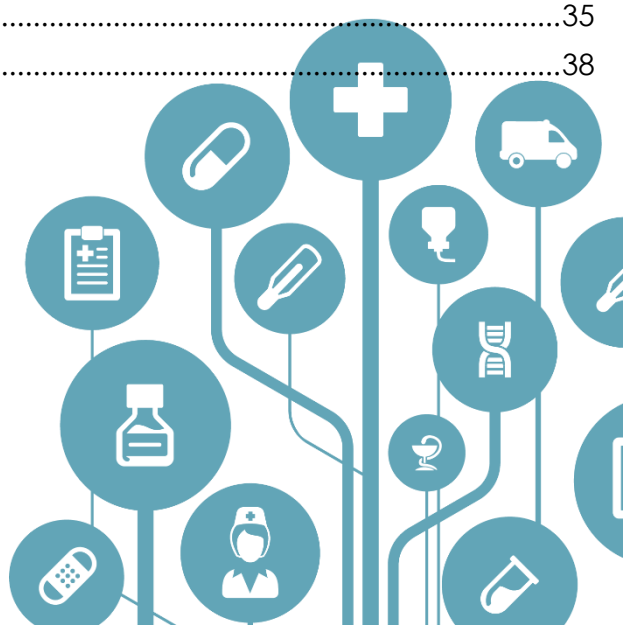
National Quality Improvement Project 2018/2019
Feverish Children
Information Pack



Introduction

Paediatric attendances account for 25% of Emergency Department attendances. Of those, the patients attending for medical reasons e.g. fever/ unwell take up a disproportionate amount of senior clinician time.

Paediatric Emergency Medicine is particularly challenging because we know there will be a few very sick children amongst the many children with similar symptoms who have a self-limiting illness – the needles in the haystack. In the paediatric population we know that standardised assessment and scoring methods can help clinicians spot the sick children.

From the data in the 2015/16 vital signs in children audit we know that one third of the children presenting to the ED are infants – those below 2 years old who have limited ability to communicate symptoms and are therefore the most challenging. The results of that audit showed a need for increased documentation of both initial and repeat vital signs within the timeframes stated in the standards, which is within 15 minutes of arrival or triage and 60 minutes for the repeat. Whilst there is room for improvements, documentation regarding the recognition and acting to address the abnormal signs is generally good.

In the UK, the **Fever in under 5s: assessment and initial management** guideline from the National Institute for Health and Clinical Excellence (NICE) (National Institute for Health and Clinical Excellence, 2017)was updated in 2017 to cross-refer to the NICE guideline on **Sepsis: recognition, diagnosis and early management** (National Institute for Health and Clinical Excellence, 2017) in addition to some other recommendations.

Sets of vital signs consist of: temperature, respiratory rate, heart rate, oxygen saturation, Glasgow Coma Scale (GCS) or AVPU (alert, response to voice, responsive to pain or unresponsive) score, and capillary refill time. Vital signs are frequently recorded in children presenting at EDs because, if abnormal, they indicate that a patient has deranged physiology. This derangement is often indicative of a disease process and associated with an increased risk of morbidity and mortality (Armstrong BP, 2008). The detection of abnormal vital signs, appropriate escalation and response can avoid the patients' deterioration and improve patient outcomes.

Where possible, it is important that children with persistently abnormal vital signs are reviewed by a senior doctor before being discharged home. Applying good principles and assessment tools will ensure that we minimise the likelihood of missing serious illness in this challenging group of patients.

Methodology

Inclusion criteria

Patients must meet the following criteria for inclusion:

- Children under 5 years of age
- Presenting to an ED
- Children who attend your ED with **fever** or **febrile illness** as part of their presenting complaint.
- For the purposes of the audit, a fever is defined as a **temperature ≥ 38 °C**.

Exclusion criteria

- Patients on or past their 5th birthday
- Be careful to exclude children who have had a recent fever, but do not have a fever or febrile illness on arrival at the ED.

For further information about using ECDS or your ED's electronic patient record to identify relevant cases, and to extract data from your system, please see the appendix.

Flow of data searches to identify audit cases

Using codes in the appendix first identify all patients attending your ED between the relevant dates, then by age at time of attendance, then through the other relevant criteria.

If your ED is reliably using the Emergency Care Data Set (ECDS), then your IT department should be able to a) pull off a list of eligible cases for you, and b) extract some or all of the data you need to enter. Please see appendix 1 and 2 for the list of codes they will need to identify eligible cases or extract the data.

Data entry information

Sample size and data frequency

The RCEM clinical audits have had a major upgrade, providing you with a range of new features and quality improvement tools. These include a live data dashboard, tracking how your data changes weekly on run charts, and the ability to have your own PDSA cycles added to your charts.

Recommended: To maximise the benefit of the new run charts and features RCEM recommends entering **5 consecutive cases per week**. This will allow you to see your ED's performance on key measures changing week by week.

Alternative: If your ED will find weekly data entry too difficult to manage, you may wish to enter data monthly instead. The system will ask you for each patient's arrival date and automatically split your data into weekly arrivals, so you can get the benefit of seeing weekly variation.

Expected patient numbers	Recommended sample size	Recommended data entry frequency
<5 a week	All patients	Weekly
>5 a week	5 consecutive patients	Weekly
Expected patient numbers	**Alternative sample size**	**Alternative data entry frequency**
<5 a week	All patients	Monthly
>5 a week	20 consecutive patients	Monthly

Data collection period

Data should be collected on patients attending from 1 August 2018 – 31 January 2019.

Data submission period

Data can be submitted online at the link below from 1 August 2018 – 31 January 2019. You can find the link to log into the data entry site at www.rcem.ac.uk/audits

Data Sources

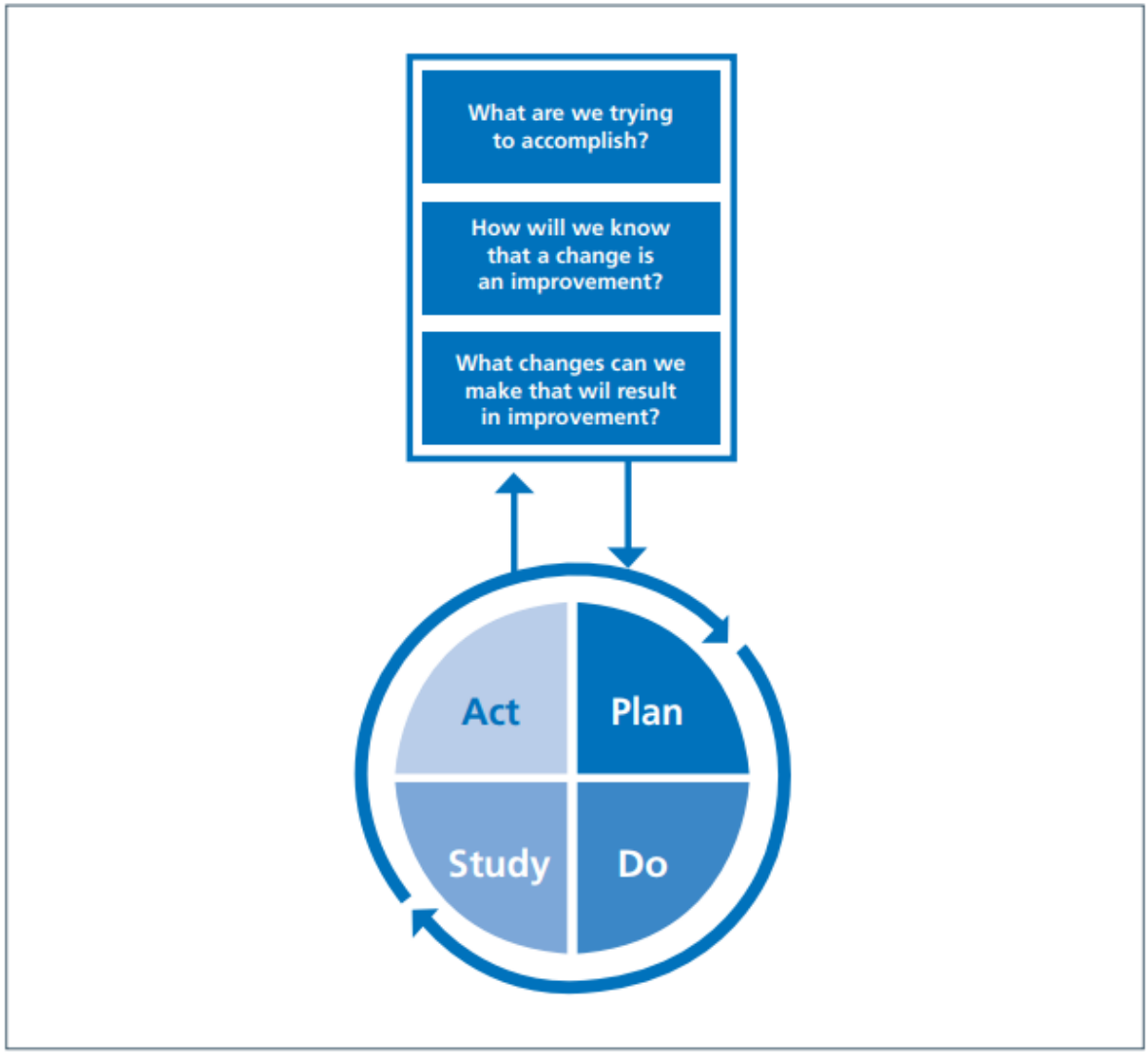
ED patient records (paper, electronic or both).

Quality improvement information

The purpose of clinical audit is to quality assure and quality improve your service where it is not meeting standards. The new RCEM system allows your team to record details of quality improvement projects (QIP) and see on your dashboard how each initiative affects your data on key measures.

We encourage you to use this new feature to try out QIPs in your department. If you are new to QIPs, we recommend you follow a Plan Do Study Act (PDSA) methodology. The Institute for Healthcare Improvement (IHI) provides a useful worksheet which will help you to think about the changes you want to make and how to implement them.

The model for improvement, IHI



Standards

STANDARD	GRADE
1. Children presenting to Emergency Departments (EDs) with fever or febrile illness should have the following recorded as part of the initial assessment (within 15 mins of arrival or triage): • respiratory rate • oxygen saturation • pulse • blood pressure/capillary refill • GCS/AVPU • temperature	F
2. Children presenting to EDs with fever or febrile illness should be assessed as to their risk of sepsis using a stratified risk assessment/screening tool.	F
3. Children presenting with fever or febrile illness and without an apparent source of infection should be assessed as per NICE guidance traffic light system to guide further investigation and management.	D
4. There should be timely senior review (by an EM or paediatric consultant/ST4+ or equivalent non-training doctor) for children presenting to EDs with fever or febrile illness who: • are < 1 year of age • **OR** have no apparent source of infection with red features as per NICE feverish illness guidance • **OR** are assessed to be at intermediate or high risk of sepsis (2 or more amber features, or one red feature)	D
5. Children presenting to EDs with fever or febrile illness who are discharged home should be provided with an appropriate "safety net" including information to take home e.g. written advice, video, app.	A
6. EDs should provide training for clinicians in the management of children presenting with febrile illness including recognition of sepsis.	D

Grade definition

F - Fundamental: need to be applied by all those who work and serve in the healthcare system. Behaviour at all levels and service provision need to be in accordance with at least these fundamental standards. No provider should provide any service that does not comply with these fundamental standards, in relation to which there should be zero tolerance of breaches.

D - Developmental: set requirements over and above the fundamental standards.

A - Aspirational: setting longer term goals.

Audit questions

Case mix

1.1	Reference (do not enter patient identifiable data)	
1.2	Date and time of arrival or triage – whichever is earlier	dd/mm/yyyy HH:MM
1.3	Patient date of birth	dd/mm/yyyy

Vital signs

	Were the following vital signs measured and recorded?			
	Yes (tick all applicable)	Time (leave blank if unknown)	Date (for use if different to date of admission)	No (select option where applicable)
2.1	Respiratory rate	HH:MM	dd/mm/yyyy	• No – but the reason was recorded • Not recorded
2.2	Oxygen saturation	HH:MM	dd/mm/yyyy	• No – but the reason was recorded • Not recorded
2.3	Pulse	HH:MM	dd/mm/yyyy	• No – but the reason was recorded • Not recorded
2.4	Systolic blood pressure / capillary refill	HH:MM	dd/mm/yyyy	• No – but the reason was recorded • Not recorded
2.5	GCS score (or AVPU)	HH:MM	dd/mm/yyyy	• No – but the reason was recorded • Not recorded
2.6	Temperature	HH:MM	dd/mm/yyyy	• No – but the reason was recorded • Not recorded

Patient risk and treatment

3.1	Was an early warning score (EWS) recorded?	• Yes • Not recorded
3.2	Was a sepsis risk stratification tool used?	• Yes – low risk • Yes – moderate to high risk (2 or more amber features) • Yes – high risk (1 or more red features) • Not recorded

3.2a-g	If 3.2 = high risk: Is there evidence of the following investigations (tick all that apply)			
	Tick all applicable	Time (leave blank if unknown)	Date (for use if different to date of admission)	No (select option where applicable)
	• Bloods gas	HH:MM	dd/mm/yyyy	• No – but the reason was recorded • Not recorded

	• Blood culture	HH:MM	dd/mm/yyyy	• No – but the reason was recorded • Not recorded
	• FBC	HH:MM	dd/mm/yyyy	• No – but the reason was recorded • Not recorded
	• CRP	HH:MM	dd/mm/yyyy	• No – but the reason was recorded • Not recorded
	• U&E	HH:MM	dd/mm/yyyy	• No – but the reason was recorded • Not recorded
	• Creatinine	HH:MM	dd/mm/yyyy	• No – but the reason was recorded • Not recorded
	• Clotting	HH:MM	dd/mm/yyyy	• No – but the reason was recorded • Not recorded
3.3	Did the patient have a period of observation and review?			• Yes • No
3.4	Did the patient have an apparent source infection?			• Yes • No
3.4a	If 3.4 = No: Is it clear from the records whether the patient was at low risk, intermediate risk or high risk of serious bacterial illness as per NICE feverish child traffic light guidance?			• Yes – low risk (green features) • Yes – intermediate risk (amber features) • Yes – high risk (red features) • No
3.5	When did the patient have a clinical review by a senior (ST4+) EM or paediatric clinician?			• Yes HH:MM dd/mm/yy • Evidence of senior review but no time recorded • Not reviewed by a senior clinician
3.6	Did the patient receive antibiotics?			• IV antibiotics • Oral antibiotics • No antibiotics — HH:MM dd/mm/yy

Discharge

4.1	Was the patient:	• Admitted • Discharged • Not recorded	HH:MM dd/mm/yy
4.2	If discharged: Was appropriate "safety net" provided, including information to take home?	• Yes • No • Not recorded	

Organisational data

Please answer these questions once per ED.

1.1	Does your department use an early warning score?	• Yes • No • If yes, please specify which: _____
1.2	Does your department use a tool to identify children at risk of sepsis?	• Yes - NICE sepsis risk stratification tool • Yes - UK sepsis trust ED/AMU sepsis screening and action tool • Yes - locally developed tool • Yes - other - please specify _____ • No
1.3	In your department if a child is identified at being at risk of sepsis, is a clinical management tool instigated?	• Yes - NICE sepsis risk stratification • Yes - UK sepsis trust sepsis 6 • Yes - locally developed tool • Yes - other - please specify _____ • No
1.4	Does your ED provide advice to give to patients, carers or children with febrile illness (tick all that apply)	• Yes - written leaflet • Yes - app/electronic resource • Yes - video • Yes - sign posts to external resources • Yes - other, please specify _____ • No
1.4a	If yes: Does the advice include (tick all that apply):	• Management of febrile illness • Spotting signs of sepsis • When to access services for review • How to access services for review
1.5	What training does your trust provide for clinicians managing febrile children (tick all that apply)?	• Recognising paediatric sepsis • Use of NICE guidance for fever in under 5s with no clear focus • Simulation training • Elearning • Other - please specify _____

Notes
(Optional space to record any additional notes for local use)

Question and answer definitions

Term	Definition
EWS	Early warning score. This includes EWS, PEWS, POPS, or equivalent.

Evidence base for standards

These standards have been checked for alignment with NICE Clinical guideline (2017) Fever in under 5s: assessment and initial management (CG160) and NICE guideline (2017) Sepsis: recognition, diagnosis and early management.

STANDARD	EVIDENCE
1. Children presenting to Emergency Departments (EDs) with fever or febrile illness should have the following recorded as part of the initial assessment (within 15 mins): • respiratory rate • oxygen saturation, • pulse, • blood pressure/capillary refill, • GCS/AVPU • temperature	
2. Children presenting to EDs with fever or febrile illness should be assessed as to their risk of sepsis using a stratified risk assessment/screening tool.	
3. Children presenting with fever or febrile illness and without an apparent source of infection should be assessed as per NICE guidance traffic light system to guide further investigation and management.	
4. There should be timely senior review (by an EM or paediatric consultant/ST4+) for children presenting to EDs with fever or febrile illness who: • are < 1 year of age • **OR** have no apparent source of infection with red features as per NICE feverish illness guidance • **OR** are assessed to be at intermediate or high risk of sepsis (2 or more amber features, or one red feature)	
5. Children presenting to EDs with fever or febrile illness who are discharged home should be provided with an appropriate "safety net" including information to take home e.g. written advice, video, app.	
6. EDs should provide training for clinicians in the management of children presenting with febrile illness including recognition of sepsis.	

Appendix 1: ECDS Search terms to support case identification

These codes will help you and your IT team to identify cases that may be eligible for the audit. This is not an exhaustive list and other search terms can be used. All potential patients should then be reviewed to check they meet the definitions & selection criteria before inclusion in the audit.

Inclusion criteria	ECDS data group	ECDS data item	M/R /O	Format	Start value	Finish value	DM&D Code	DM&D Description	SNOMED code	SNOMED description
Start of data capture period	EC attendance activity characteristics	EMERGENCY CARE ARRIVAL DATE	M	an10 CCYY-MM-DD	2018-08-01	2019-01-31				
	EC attendance activity characteristics	EMERGENCY CARE ARRIVAL TIME	M	an8 HH:MM:SS	00:00:01	23:59:59				
Children under 5 years of age	Patient Identity	PERSON BIRTH DATE	R	an10 CCYY-MM-DD	2013-08-01	2014-01-31				
		AGE AT CDS ACTIVITY DATE	M	max an3	0	5				
Presenting to ED	EC Attendance Location	EMCARE DEPARTMENT TYPE	M	an2			01	Type 1 : General Emergency Department (24 hour)		
							02	Type 2 : Specialist Emergency Department (e.g. paediatric, ophthalmology)		

Inclusion criteria		ECDS data group	ECDS data item	M/R /O	Format	Start value	Finish value	DM&D Code	DM&D Description	SNOMED code	SNOMED description
	Presenting complaint	EC attendance activity characteristics	Chief complaint	R						267036007	Dyspnea (finding)
										230145002	Difficulty breathing (finding)
										70407001	Stridor (finding)
										66857006	Hemoptysis (disorder)
										87317003	Respiratory arrest (disorder)
										29857009	Chest pain (finding)
										21522001	Abdominal pain (finding)
										62315008	Diarrhea (finding)
										422587007	Nausea (finding)
										422400008	Vomiting (disorder)
										18165001	Jaundice (finding)
										249624003	Blood in feces symptom (finding)
										25064002	Headache (finding)
										40917007	Clouded consciousness (finding)
										3006004	Disturbance of consciousness (finding)
										91175000	Seizure (finding)
										44077006	Numbness (finding)
										394616008	Unsteady gait (finding)

Inclusion criteria		ECDS data group	ECDS data item	M/R /O	Format	Start value	Finish value	DM&D Code	DM&D Description	SNOMED code	SNOMED description
										283682007	Bite - wound (disorder)
										271807003	Eruption of skin (disorder)
										95320005	Disorder of skin (disorder)
										418363000	Itching of skin (finding)
										161887000	Spontaneous bruising (disorder)
										81680005	Neck pain (finding)
										162356005	Earache symptom (finding)
										300132001	Ear discharge (finding)
										15188001	Hearing loss (disorder)
										68235000	Nasal congestion (finding)
										267102003	Sore throat symptom (finding)
										49727002	Cough (finding)
										421581006	Pharyngeal swelling (finding)
										246679005	Discharge from eye (finding)
										63102001	Visual disturbance (disorder)
										409668002	Photophobia (finding)
										271771009	Joint swelling (finding)
										49650001	Dysuria (finding)
										267064002	Retention of urine (disorder)

Inclusion criteria		ECDS data group	ECDS data item	M/R /O	Format	Start value	Finish value	DM&D Code	DM&D Description	SNOMED code	SNOMED description
										83128009	Oliguria (finding)
										34436003	Blood in urine (finding)
										247355005	Flank pain (finding)
										300528000	Disorder of penis (disorder)
										248020004	Bizarre behavior (finding)
										7011001	Hallucinations (finding)
										386661006	Fever (finding)
										385486001	Postoperative complication (disorder)
										162214009	Crying infant (finding)
										3415004	Cyanosis (finding)
	Actual diagnosis	Diagnosis	Diagnosis	M						38354005	Open wound of head (disorder)
										210339009	Open wound of face (disorder)
										125644007	Open wound of neck (disorder)
										125645008	Open wound shoulder region (disorder)
										125648005	Open wound of upper arm (disorder)
										125649002	Open wound of forearm (disorder)
										125650002	Open wound of elbow (disorder)
										125652005	Open wound of hand (disorder)

Inclusion criteria		ECDS data group	ECDS data item	M/R /O	Format	Start value	Finish value	DM&D Code	DM&D Description	SNOMED code	SNOMED description
										125654006	Open wound of thumb (disorder)
										125653000	Open wound of finger (disorder)
										125659001	Open wound of thigh (disorder)
										125660006	Open wound of knee (disorder)
										125661005	Open wound of lower leg (disorder)
										125663008	Open wound of foot (disorder)
										125664002	Open wound of toe (disorder)
										269169002	Open wound of back (disorder)
										127314000	Open wound of chest wall (disorder)
										274170000	Open wound of abdominal wall (disorder)
										210484005	Open wound of perineum (disorder)
										240131006	Rhabdomyolysis (disorder)
										40541001	Acute pulmonary edema (disorder)
										3238004	Pericarditis (disorder)
										373945007	Pericardial effusion (disorder)
										56819008	Endocarditis (disorder)

Inclusion criteria		ECDS data group	ECDS data item	M/R /O	Format	Start value	Finish value	DM&D Code	DM&D Description	SNOMED code	SNOMED description
										4556007	Gastritis (disorder)
										309773000	Complication of gastrostomy (disorder)
										128241005	Inflammatory disease of liver (disorder)
										59927004	Hepatic failure (disorder)
										34000006	Crohn's disease (disorder)
										64766004	Ulcerative colitis (disorder)
										195967001	Asthma (disorder)
										422588002	Aspiration pneumonia (disorder)
										60046008	Pleural effusion (disorder)
										58554001	Empyema of pleura (disorder)
										409622000	Respiratory failure (disorder)
										87317003	Respiratory arrest (disorder)
										190905008	Cystic fibrosis (disorder)
										443980004	Neutropenic sepsis (disorder)
										165517008	Neutropenia (finding)
										64779008	Blood coagulation disorder (disorder)

Inclusion criteria		ECDS data group	ECDS data item	M/R /O	Format	Start value	Finish value	DM&D Code	DM&D Description	SNOMED code	SNOMED description
										302215000	Thrombocytopenic disorder (disorder)
										127040003	Hereditary hemoglobinopathy disorder homozygous for hemoglobin S (disorder)
										417425009	Hemoglobin SS disease with crisis (disorder)
										40108008	Thalassemia (disorder)
										188725004	Lymphoid leukemia (disorder)
										46635009	Diabetes mellitus type 1 (disorder)
										420422005	Ketoacidosis in diabetes mellitus (disorder)
										43116000	Eczema (disorder)
										126485001	Urticaria (disorder)
										89322006	Urticaria medicamentosa (disorder)
										9014002	Psoriasis (disorder)
										72658003	Prickly heat (disorder)
										45816000	Pyelonephritis (disorder)
										14669001	Acute renal failure syndrome (disorder)

Inclusion criteria		ECDS data group	ECDS data item	M/R /O	Format	Start value	Finish value	DM&D Code	DM&D Description	SNOMED code	SNOMED description
										52254009	Nephrotic syndrome (disorder)
										36171008	Glomerulonephritis (disorder)
										90708001	Kidney disease (disorder)
										62014003	Adverse reaction to drug (disorder)
										54150009	Upper respiratory infection (disorder)
										50417007	Lower respiratory tract infection (disorder)
										233604007	Pneumonia (disorder)
										278516003	Lobar pneumonia (disorder)
										312403005	Legionella pneumonia (disorder)
										6142004	Influenza (disorder)
										27836007	Pertussis (disorder)
										80384002	Epiglottitis (disorder)
										62994001	Tracheitis (disorder)
										56717001	Tuberculosis (disorder)
										128045006	Cellulitis (disorder)
										31928004	Abscess of skin AND/OR subcutaneous tissue (disorder)

Inclusion criteria		ECDS data group	ECDS data item	M/R /O	Format	Start value	Finish value	DM&D Code	DM&D Description	SNOMED code	SNOMED description
										30242009	Scarlet fever (disorder)
										68566005	Urinary tract infectious disease (disorder)
										12463005	Infectious gastroenteritis (disorder)
										95545007	Hemorrhagic diarrhea (disorder)
										27601005	Infection due to Class Cestoda and/or Class Trematoda and/or Phylum Nemata (disorder)
										56335008	Infection by Trichomonas (disorder)
										10679007	Infection by Giardia lamblia (disorder)
										91302008	Septicemia (disorder)
										76571007	Septic shock (disorder)
										23511006	Meningococcal infectious disease (disorder)
										95883001	Bacterial meningitis (disorder)
										58170007	Viral meningitis (disorder)
										45170000	Encephalitis (disorder)

Inclusion criteria		ECDS data group	ECDS data item	M/R /O	Format	Start value	Finish value	DM&D Code	DM&D Description	SNOMED code	SNOMED description
										14189004	Measles (disorder)
										36989005	Mumps (disorder)
										36653000	Rubella (disorder)
										61462000	Malaria (disorder)
										86406008	Human immunodeficiency virus infection (disorder)
										7520000	Pyrexia of unknown origin (finding)
										75258004	Food poisoning (disorder)
										822091000000100	Clinical syndrome due to Escherichia coli O157 infection (disorder)
										397428000	Diphtheria (disorder)
										709410003	Haemophilus influenzae type b infection (disorder)
										76902006	Tetanus (disorder)
										4834000	Typhoid fever (disorder)
										85904008	Paratyphoid fever (disorder)
										111939009	Dysentery (disorder)
										63650001	Cholera (disorder)
										398447004	Severe acute respiratory syndrome (disorder)

Inclusion criteria		ECDS data group	ECDS data item	M/R /O	Format	Start value	Finish value	DM&D Code	DM&D Description	SNOMED code	SNOMED description
										40468003	Viral hepatitis, type A (disorder)
										66071002	Type B viral hepatitis (disorder)
										822071000000104	Acute infectious hepatitis (disorder)
										822061000000106	West Nile fever (disorder)
										16541001	Yellow fever (disorder)
										414531002	Intoxication with Clostridium botulinum toxin (disorder)
										398102009	Acute poliomyelitis (disorder)
										240460008	Acute paralytic poliomyelitis (disorder)
										74400008	Appendicitis (disorder)
										44897000	Mesenteric lymphadenitis (disorder)
										76581006	Cholecystitis (disorder)
										26918003	Ascending cholangitis (disorder)
										81060008	Intestinal obstruction (disorder)
										82127005	Perianal abscess (disorder)
										48661000	Peritonitis (disorder)

Inclusion criteria		ECDS data group	ECDS data item	M/R /O	Format	Start value	Finish value	DM&D Code	DM&D Description	SNOMED code	SNOMED description
										197456007	Acute pancreatitis (disorder)
										302918009	Disorder of stoma (disorder)
										396232000	Inguinal hernia (disorder)
										50063009	Femoral hernia (disorder)
										9707006	Intestinal volvulus (disorder)
										31054009	Ureteric stone (disorder)
										34436003	Blood in urine (finding)
										197983000	Orchitis and epididymitis (disorder)
										427793007	Complication of urinary catheter (disorder)
										266571009	Acquired phimosis (disorder)
										711168000	Ulcer of skin of lower extremity (disorder)
										65363002	Otitis media (disorder)
										3135009	Otitis externa (disorder)
										86279000	Acute suppurative otitis media with spontaneous rupture of ear drum (disorder)
										21186006	Chronic otitis media (disorder)

Inclusion criteria		ECDS data group	ECDS data item	M/R /O	Format	Start value	Finish value	DM&D Code	DM&D Description	SNOMED code	SNOMED description
										52404001	Mastoiditis (disorder)
										23919004	Labyrinthitis (disorder)
										90176007	Tonsillitis (disorder)
										15033003	Peritonsillar abscess (disorder)
										444814009	Viral sinusitis (disorder)
										68033004	Tracheostomy complication (disorder)
										109245003	Cellulitis of periorbital region (disorder)
										194005002	Orbital cellulitis (disorder)
										299709002	Dental abscess (disorder)
										80483009	Abscess of salivary gland (disorder)
										312087002	Disorders following clinical procedure (disorder)
										302436000	Attention to dressing of skin (procedure)
										824091000000105	Attention to sutures (procedure)
										396234004	Infective arthritis (disorder)
										60168000	Osteomyelitis (disorder)
										69896004	Rheumatoid arthritis (disorder)

Inclusion criteria		ECDS data group	ECDS data item	M/R /O	Format	Start value	Finish value	DM&D Code	DM&D Description	SNOMED code	SNOMED description
										239783001	Post-infective arthritis (disorder)
										81808003	Hemarthrosis (disorder)
										4120002	Bronchiolitis (disorder)
										276191000000107	Viral wheeze (disorder)
										71186008	Croup (disorder)
										41497008	Febrile convulsion (finding)
										75053002	acute febrile mucocutaneous lymph node syndrome (disorder)
										51178009	Sudden infant death syndrome (finding)
										87476004	Convulsions in the newborn (disorder)
										49723003	Intussusception of intestine (disorder)
										72047008	Juvenile osteochondrosis of tibial tubercle (disorder)
										69430001	Abscess of vulva (disorder)
										2776000	Delirium (disorder)
										44400004	Toxic effect of venom (disorder)
										401207004	Medication side effects present (finding)

Inclusion criteria		ECDS data group	ECDS data item	M/R /O	Format	Start value	Finish value	DM&D Code	DM&D Description	SNOMED code	SNOMED description
										52072009	Heat stroke (disorder)
										281900007	No abnormality detected (finding)
										812491000000102	Died in emergency department (finding)
										812481000000104	Dead on arrival in accident and emergency department (finding)

Appendix 2: ECDS codes to support data extraction

These codes will help you and your IT team to extract audit data from your electronic patient records. This is not an exhaustive list and other search terms can be used. All data should be reviewed to ensure it is accurate.

Audit questions				Able to capture directly via EDIS (ECDS)?	ECDS data item and codes			ECDS proxy measure		
					ECDS data item	SNOMED / D&DM code	SNOMED / D&DM description	ECDS data item	SNOMED / D&DM code	SNOMED / D&DM description
Case mix										
1.1	Reference (do not enter patient identifiable data)			NO	-	-	-	-	-	-
1.2	Date and time of arrival or triage – whichever is earlier			YES	EMERGENCY CARE ARRIVAL DATE	-	-	-	-	-
					EMERGENCY CARE ARRIVAL TIME	-	-	-	-	-
					EMERGENCY CARE INITIAL ASSESSMENT DATE	-	-	-	-	-
					EMERGENCY CARE INITIAL ASSESSMENT TIME	-	-	-	-	-
1.3	Patient date of birth			YES	PERSON BIRTH DATE	-	-	-	-	-
Vital signs										
Were the following vital signs measured and recorded?		*Time*	*Date*							
2.1	Respiratory rate			NO	-	-	-	-	-	-
2.2	Oxygen saturation			NO	-	-	-	-	-	-
2.3	Pulse			NO	-	-	-	-	-	-

Audit questions				Able to capture directly via EDIS (ECDS)?	ECDS data item and codes			ECDS proxy measure		
					ECDS data item	SNOMED / D&DM code	SNOMED / D&DM description	ECDS data item	SNOMED / D&DM code	SNOMED / D&DM description
2.4	Systolic blood pressure / capillary refill			NO	-	-	-	-	-	-
2.5	GCS score (or AVPU)			NO	-	-	-	-	-	-
2.6	Temperature			NO	-	-	-	-	-	-
Patient risk and treatment										
3.1	Was an early warning score (EWS) recorded?	Yes		NO	-	-	-	ACUITY SCORE	1077251000000100	Non-urgent level emergency care (regime/therapy)
				NO					1077241000000103	Standard level emergency care (regime/therapy)
				NO					1064901000000108	Urgent level emergency care (regime/therapy)
				NO					1064911000000105	Very urgent level emergency care (regime/therapy)
									1064891000000107	Immediate resuscitation level emergency care (regime/therapy)
		Not recorded		NO	-	-	-	ACUITY SCORE	NOT recorded	
3.2	Was a sepsis risk stratification tool used?	Low risk		NO	-	-	-	ACUITY SCORE	1077251000000100	Non-urgent level emergency care (regime/therapy)
							-	ACUITY SCORE	1077241000000103	Standard level emergency care (regime/therapy)
		Moderate to high risk (2 or more amber features)		NO	-	-	-	ACUITY SCORE	1064901000000108	Urgent level emergency care (regime/therapy)

Audit questions				Able to capture directly via EDIS (ECDS)?	ECDS data item and codes			ECDS proxy measure		
					ECDS data item	SNOMED / D&DM code	SNOMED / D&DM description	ECDS data item	SNOMED / D&DM code	SNOMED / D&DM description
		High risk (1 or more red features)		NO	-	-	-	ACUITY SCORE	1064911000000105	Very urgent level emergency care (regime/therapy)
								ACUITY SCORE	1064891000000107	Immediate resuscitation level emergency care (regime/therapy)
		Not recorded		NO	-	-	-	ACUITY SCORE	NOT recorded	
3.2 a-g	Identification of HIGH RISK			NO	-	-	-	ACUITY SCORE	1064911000000105	Very urgent level emergency care (regime/therapy)
									1064891000000107	Immediate resuscitation level emergency care (regime/therapy)
	If high risk: Is there evidence of the following investigations (tick all that apply)	Time	Date	YES	PROCEDURE DATE (EMERGENCY CARE CLINICAL INVESTIGATION)		Date and Time investigations performed	PROCEDURE TIME (EMERGENCY CARE CLINICAL INVESTIGATION)	-	-
	Blood gas			YES	EMERGENCY CARE CLINICAL INVESTIGATION (SNOMED CT)	6017000	Analysis of arterial blood gases and pH (procedure)	-	-	-
	Blood culture			YES	EMERGENCY CARE CLINICAL INVESTIGATION (SNOMED CT)	30088009	Blood culture (procedure)	-	-	-
	FBC			YES	EMERGENCY CARE CLINICAL INVESTIGATION (SNOMED CT)	26604007	Complete blood count (procedure)	-	-	-

Audit questions					Able to capture directly via EDIS (ECDS)?	ECDS data item and codes			ECDS proxy measure		
						ECDS data item	SNOMED / D&DM code	SNOMED / D&DM description	ECDS data item	SNOMED / D&DM code	SNOMED / D&DM description
	CRP				YES	EMERGENCY CARE CLINICAL INVESTIGATION (SNOMED CT)	55235003	C-reactive protein measurement (procedure)	-	-	-
	U&E				YES	EMERGENCY CARE CLINICAL INVESTIGATION (SNOMED CT)	252167001	Urea and electrolytes (procedure)	-	-	-
	Creatinine				YES	EMERGENCY CARE CLINICAL INVESTIGATION (SNOMED CT)	397798009	Creatine kinase measurement (procedure)	-	-	-
	Clotting				YES	EMERGENCY CARE CLINICAL INVESTIGATION (SNOMED CT)	3116009	Blood coagulation panel (procedure)	-	-	-
3.3	Did the patient have a period of observation and review?	Yes			NO	-	-	-		-	-
		No			NO	-	-	-		-	-
3.4	Did the patient have an apparent source infection?	Yes			NO	-	-	-		-	-
		No			NO	-	-	-	Diagnosis qualifier	410605003	Confirmed present (qualifier value)
3.4a	If there was no apparent source of infection:				NO	-	-	-	Diagnosis qualifier	415684004	Suspected (qualifier value
	Is it clear from the records whether the patient was at low risk, intermediate risk or high risk of serious	Yes	Low risk		-	-	-		ACUITY SCORE	1077251000000100	Non-urgent level emergency care (regime/therapy)
							-		ACUITY SCORE	1077241000000103	Standard level emergency care (regime/therapy)
			Moderate to high risk (2 or more amber features)		-	-	-		ACUITY SCORE	1064901000000108	Urgent level emergency care (regime/therapy)

Audit questions					Able to capture directly via EDIS (ECDS)?	ECDS data item and codes			ECDS proxy measure		
						ECDS data item	SNOMED / D&DM code	SNOMED / D&DM description	ECDS data item	SNOMED / D&DM code	SNOMED / D&DM description
	bacterial illness as per NICE feverish child traffic light guidance?		high risk (1 or more red features)		NO	-	-	-	ACUITY SCORE	1064911000000105	Very urgent level emergency care (regime/therapy)
							-	-	ACUITY SCORE	1064891000000107	Immediate resuscitation level emergency care (regime/therapy)
		No			NO		-	-	-	No acuity recorded	-
3.5	When did the patient have a clinical review by a senior (ST4+) EM or paediatric clinician?	*Yes*	*Time*		YES	EMERGENCY CARE TIME SEEN FOR TREATMENT	-	-	-	-	-
			Date		YES	EMERGENCY CARE DATE SEEN FOR TREATMENT	-	-	-	-	-
						CLINICIAN TIER	04	Senior CARE PROFESSIONALS able to supervise an Emergency Care Department alone with remote support. Possess some extended skills. Full scope of practice.	-	-	-
							05	Senior CARE PROFESSIONALS (CONSULTANTS) with accredited advanced qualifications in Emergency Medicine. Full	-	-	-

Audit questions					Able to capture directly via EDIS (ECDS)?	ECDS data item and codes			ECDS proxy measure		
						ECDS data item	SNOMED / D&DM code	SNOMED / D&DM description	ECDS data item	SNOMED / D&DM code	SNOMED / D&DM description
								set of extended skills. Full scope of practice.			
		Yes	Evidence of senior review but no time recorded		YES	CLINICIAN TIER	04	Senior CARE PROFESSIONALS able to supervise an Emergency Care Department alone with remote support. Possess some extended skills. Full scope of practice.	-	-	-
							05	Senior CARE PROFESSIONALS (CONSULTANTS) with accredited advanced qualifications in Emergency Medicine. Full set of extended skills. Full scope of practice.	-	-	-
		No	*Not reviewed by a senior clinician*		NO	-	-	-	-	-	-
3.6				Time	Date	-	-	-	-	-	-

Audit questions					Able to capture directly via EDIS (ECDS)?	ECDS data item and codes			ECDS proxy measure		
						ECDS data item	SNOMED / D&DM code	SNOMED / D&DM description	ECDS data item	SNOMED / D&DM code	SNOMED / D&DM description
	Did the patient receive antibiotics?	Yes	IV antibiotics		YES	EMERGENCY CARE PROCEDURE (SNOMED CT)	281790008	Intravenous antibiotic therapy (procedure)	-	-	-
			Oral antibiotics		NO	-	-	-	EMERGENCY CARE PROCEDURE (SNOMED CT)	18629005	Administration of drug or medicament (procedure)
		No	No antibiotics		NO	-	-	-	EMERGENCY CARE PROCEDURE (SNOMED CT)	18629005	Administration of drug or medicament (procedure) NOT PRESENT
Discharge											
4.1	Was the patient:			Time/date	YES	EMERGENCY CARE DEPARTURE DATE	-	-	-	-	-
						EMERGENCY CARE DEPARTURE TIME	-	-	-	-	-
		Admitted			YES	EMERGENCY CARE DISCHARGE DESTINATION (SNOMED CT)	306706006	Discharge to ward (procedure)	-	-	-
							1066361000000104	Emergency department discharge to high dependency unit (procedure)	-	-	-
							1066381000000108	Emergency department discharge to special care baby unit (procedure)	-	-	-
							1066391000000105	Emergency department discharge to intensive care	-	-	-

Audit questions				Able to capture directly via EDIS (ECDS)?	ECDS data item and codes			ECDS proxy measure		
					ECDS data item	SNOMED / D&DM code	SNOMED / D&DM description	ECDS data item	SNOMED / D&DM code	SNOMED / D&DM description
							unit (procedure)			
						1066401000000108	Emergency department discharge to neonatal intensive care unit (procedure)	-	-	-
						19712007	Patient transfer, to another health care facility (procedure)	-	-	-
		Discharged		YES	EMERGENCY CARE DISCHARGE DESTINATION (SNOMED CT)	306689006	Discharge to home (procedure)	-	-	-
		Not recorded		YES	EMERGENCY CARE DISCHARGE DESTINATION (SNOMED CT)	None recorded		-	-	-
4.2	□ If discharged:			YES	EMERGENCY CARE DISCHARGE DESTINATION (SNOMED CT)	306689006	Discharge to home (procedure)			-
	Was appropriate "safety net" provided, including information to take home?	Yes		NO	EC DISCHARGE INFO GIVEN	787281000000102	Provision of copy of discharge letter to patient (procedure)	-	-	-
		No		NO	-	-	-	-	-	-
		Not recorded			-	-	-	-	-	-

Appendix 3: Analysis plan for standards

This section explains how the RCEM team will be analysing your data. You are welcome to use this analysis plan to conduct local analysis if you wish. Analysis sample tells you which records will be included or excluded from the analysis. The analysis plan tells you how the RCEM team plan to graph the data and which records will meet or fail the standards.

STANDARD	GRADE	Analysis sample	Analysis plan – conditions for the standard to be met
1. Children presenting to Emergency Departments (EDs) with fever or febrile illness should have the following recorded as part of the initial assessment (within 15 mins): • respiratory rate • oxygen saturation, • pulse, • blood pressure/capillary refill, • GCS/AVPU • temperature	F	All patients	SPC chart Met: 2.1-2.6 within 15 mins of 1.2 (include 15:00 mins) Not met: all other cases
2. Children presenting to EDs with fever or febrile illness should be assessed as to their risk of sepsis using a stratified risk assessment/screening tool.	F	All patients	SPC chart Met: 3.2 = yes Not met: all other cases
3. Children presenting with fever or febrile illness and without an apparent source of infection should be assessed as per NICE guidance traffic light system to guide further investigation and management.	D	Include: 3.4 = no	SPC chart Met: 3.4a = yes Not met: all other cases
4. There should be timely senior review (by an EM or paediatric consultant/ST4+) for children presenting to EDs with fever or febrile illness who: • are < 1 year of age • **OR** have no apparent source of infection with red features as per NICE feverish illness guidance • **OR** are assessed to be at intermediate or high risk of sepsis (2 or more amber features, or one red feature)	D	Include: 1.3 = < 1 year OR 3.4a = high risk OR 3.2 = moderate OR 3.2 = high	SPC chart Met: 3.5 = within 4 hours Not met: all other cases

5. Children presenting to EDs with fever or febrile illness who are discharged home should be provided with an appropriate "safety net" including information to take home e.g. written advice, video, app.	A	Include: 4.1 = discharged	SPC chart Met: 4.2 = yes Not met: all other cases
6. EDs should provide training for clinicians in the management of children presenting with febrile illness including recognition of sepsis.	D	Include: all EDs	Bar chart Met: organisational 1.5 = recognising paediatric sepsis Not met: organisational 1.5 ≠ recognising paediatric sepsis

Analysis plan for casemix

Question	Analysis sample	Chart type and details
1.2 Date and time of arrival	All patients	Chart showing frequency of patient arrival day (Mon-Sun) and time
1.3 Patient date of birth	All patients	Stacked bar or pie chart showing age breakdown

Analysis plan for vital signs

Question	Analysis sample	Chart type and details
2.1 – 2.6 Were the following vital signs measured and recorded?	All patients	Show SPC for each of the following within 15 mins of arrival: • respiratory rate • oxygen saturation, • pulse, • blood pressure/capillary refill, • GCS/AVPU • temperature

Analysis plan for patient risk and treatment

Question	Analysis sample	Chart type and details
3.1 Was an early warning score (EWS) recorded?		SPC Chart

Q6a. Was a sepsis risk stratification tool used? (3.2)		Pie Chart
3.2 Is there evidence of the following investigations		SPC chart for: • blood gas • blood culture • FBC • CRP • U&E • Creatinine • Clotting
3.4 Did the patient have an apparent source infection?		Pie Chart: - 3.4 - yes - 3.4a – yes low risk - 3.4a – yes intermediate risk - 3.4a – yes high risk - 3.4a - no
3.6 Did the patient receive antibiotics?		SPC for IV antibiotics SCP for oral antibiotics

Analysis plan for discharge

Question	**Analysis sample**	**Chart type and details**
4.1 Was the patient:		Pie chart Admitted vs Discharged Run chart Admitted within 4 hours (0:00-4:00) Run chart Admitted Over 4 hours (4:01+)
4.2 Was appropriate "safety net" provided, including information to take home?	4.1 =discharged	Run chart – safety net

Analysis plan for organisational data

Question	**Analysis sample**	**Chart type and details**
1.1-1.4		Question to turn green if a 'Yes' option is ticked, red if 'No'
1.4a-1.5		Answer to to turn green if selected

References

National Institute for Health and Clinical Excellence. (2017). Fever in the under 5s: assessment and initial management (CG160). *NICE guideline*.

National Institute for Health and Clinical Excellence. (2017). Sepsis: recognition, diagnosis and early management. *NICE guideline*.