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Sepsis

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Barnsley Healthcare Federation

Aims and objectives

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- Case presentation
- What is sepsis?
- Why is it important for Primary care?
- What we have done at BHF
- Useful resources

Case history

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- 23 year old female seen in i-heart extended hours clinic complaining of cold symptoms, cough and sore throat
- T = 37.1, P = 68bpm, RR = 18, sats 97%, no lymphadenopathy, normal ENT exam
- Diagnosed viral sore throat, no antibiotics, symptomatic treatment advised and safety net

4 days later

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- Sore throat had got worse
- Seen again by i-heart extended hours
- T = 39, P = 136, RR = 18, Sats 99%, Halitosis and exudate on tonsils
- Diagnosis = acute bacterial tonsillitis
- Prescribed oral penicillin 500mg qds for 10 days
- Safety net

Less than 24 hours later….

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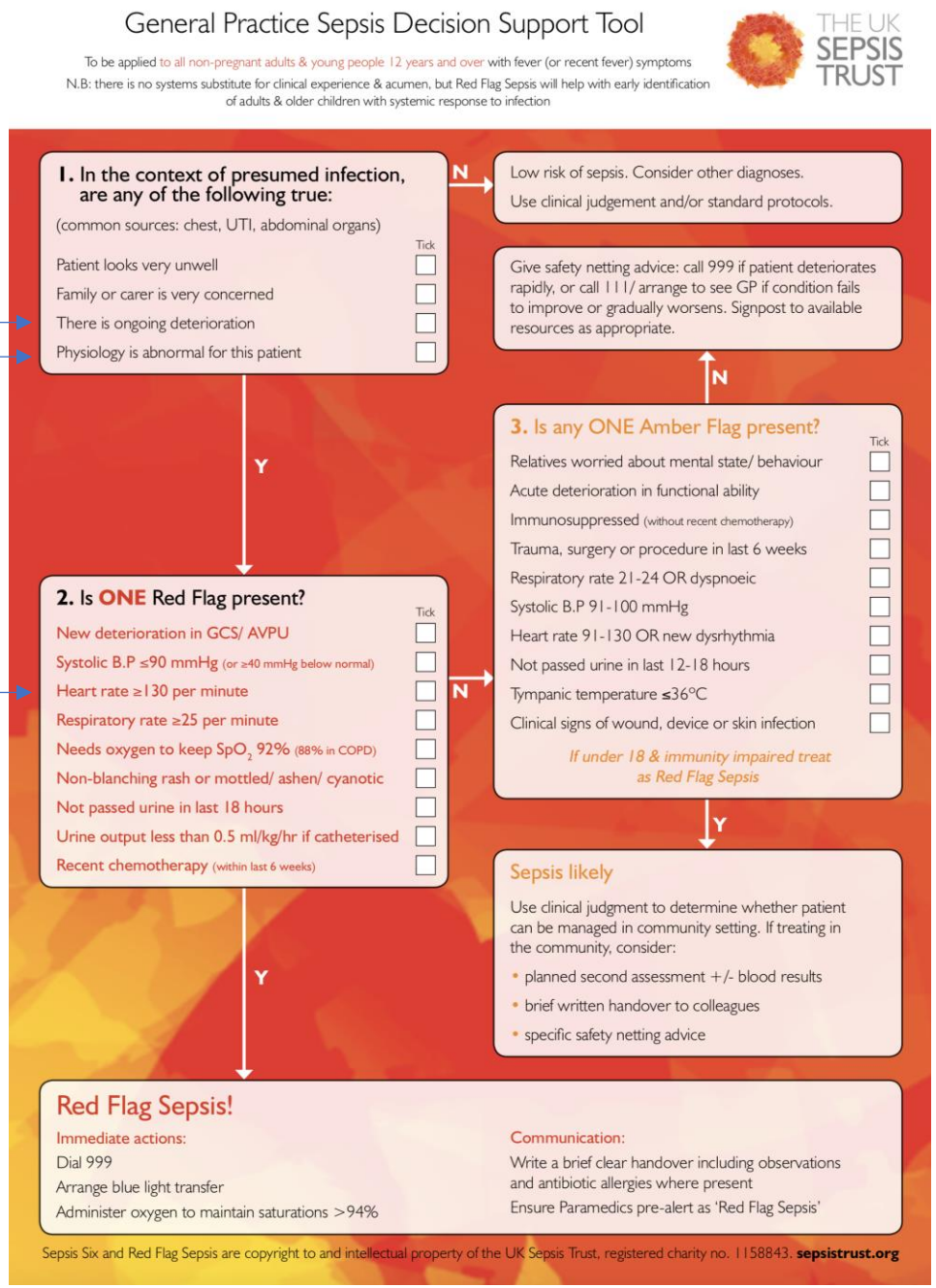
- Patient died

- Cause of death invasive group A streptococcal infection

Missed opportunity?

- Condition had got worse
- T = 39, P = 136, RR = 18, Sats 99%
- NEWS2 = 5



What is sepsis?

- https://youtu.be/AEGUCpxwAlE

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What is sepsis?

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- Sepsis is a rare but life threatening condition
- It occurs when the bodys' own response to an infection causes damage to its own tissues and organs
- It can occur in response to any infection – bacteria, funghi, viruses
- If not treated promptly can quickly progress to septic shock, multiple organ failure and death

Definitions

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Category	Definition
PREVIOUS DEFINITIONS	
SIRS (systemic inflammatory response syndrome)	Two of the following: • Temperature >38°C or <36°C • Heart rate > 90 beats/min • Respiratory rate >20 breaths/min or arterial carbon dioxide pressure <32 mm Hg • White blood cell count >12×10⁹/L or <4×10⁹/L
Sepsis	SIRS with infection (presumed or proven)
Severe sepsis	Sepsis with evidence of acute organ dysfunction (hypotension, lactic acidosis, reduced urine output, reduced PaO_2/FIO_2 ratio, raised creatinine or bilirubin, thrombocytopenia, raised international normalized ratio)
Septic shock	Sepsis with persistent hypotension after fluid resuscitation
REVISED DEFINITIONS	
Sepsis	Life threatening organ dysfunction* caused by a dysregulated host response to infection
Septic shock	Sepsis and vasopressor therapy needed to increase mean arterial pressure to ≥65 mm Hg and lactate to >2 mmol/L despite adequate fluid resuscitation

Why is sepsis important to primary care?

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- In the UK 44,000 people die each year from sepsis
- Globally 6 - 9million people die each year from sepsis
- In 70-90% of cases the infection develops in the community.
- In the community, sepsis presents as the clinical deterioration of common and preventable infections such as those of the respiratory, gastrointestinal and urinary tract, or of wounds and skin.
- Sepsis is frequently under-diagnosed at an early stage - when it still is potentially reversible.

Why is sepsis important?

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https://www.e-lfh.org.uk/programmes/sepsis/

Risk factors

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- Extremes of age
- Pregnancy
- Immune suppression – Cancer chemotherapy – long term steriods
- Recent surgery or trauma
- Indwelling catheters/lines

What can we do?

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- THINK SEPSIS
- Identify patients presenting with or at risk of developing sepsis
- Prevention – vaccination, infection prevention control –hand washing

What resources are available?

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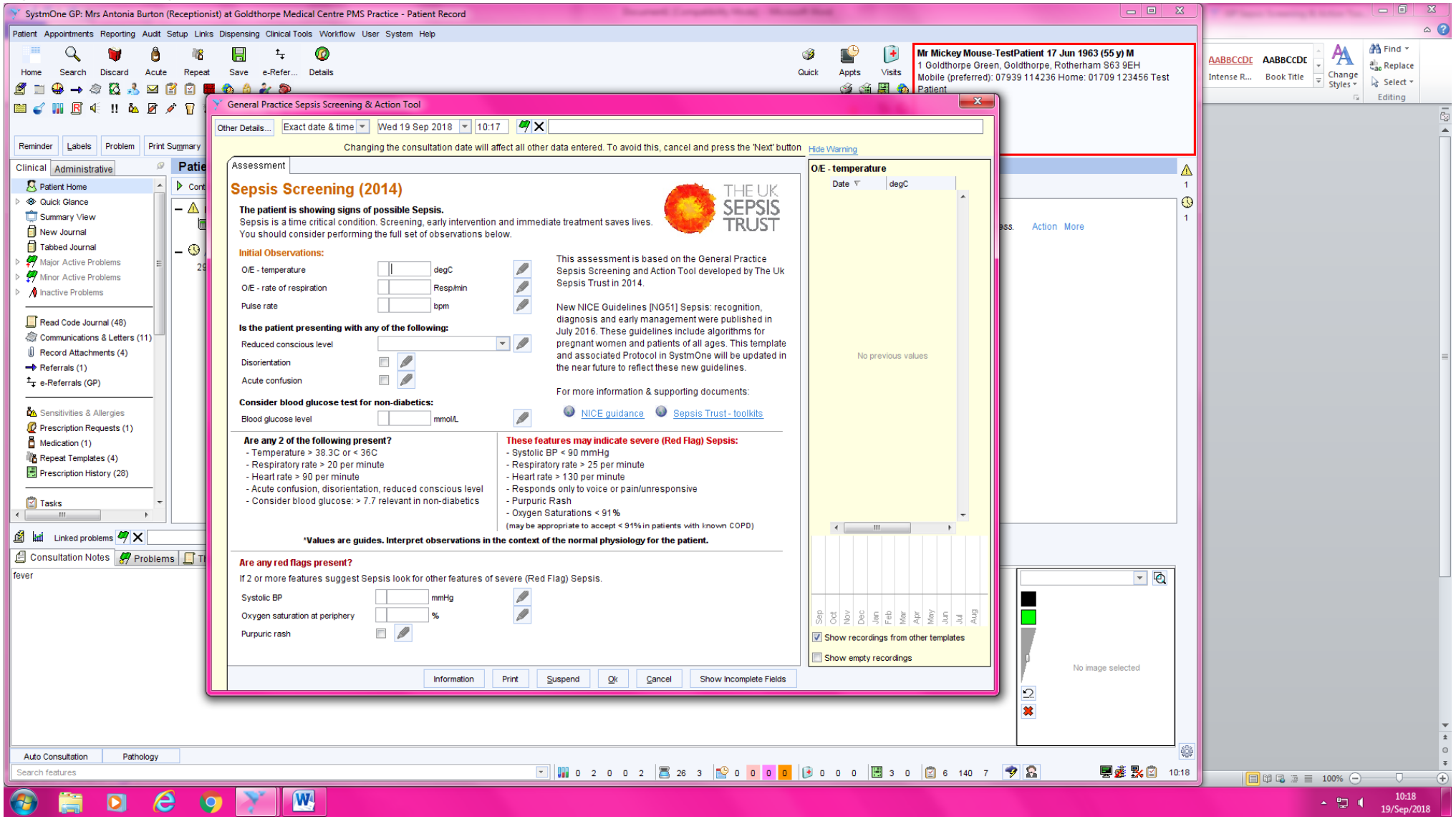
- SystemOne and EMIS sepsis screening protocols
- Triggered for key words – fever, deteriorating
- Also abnormal observations

- RCGP sepsis toolkit
- NICE guidance
- Sepsis decision support tools

Sepsis protocol



Alert Fatigue?

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NHS England admits GP system sepsis alerts were 'over-triggered'

RCGP sepsis toolkit

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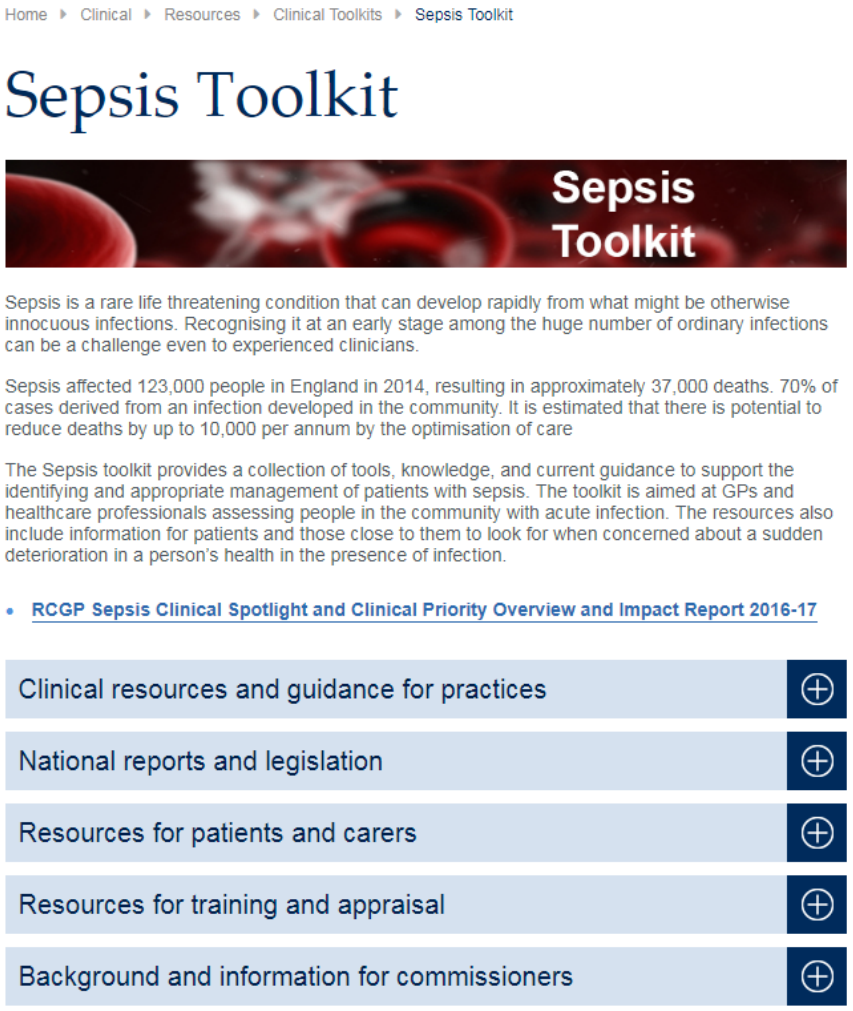


Home ▸ Clinical ▸ Resources ▸ Clinical Toolkits ▸ Sepsis Toolkit

Sepsis Toolkit

Sepsis is a rare life threatening condition that can develop rapidly from what might be otherwise innocuous infections. Recognising it at an early stage among the huge number of ordinary infections can be a challenge even to experienced clinicians.

Sepsis affected 123,000 people in England in 2014, resulting in approximately 37,000 deaths. 70% of cases derived from an infection developed in the community. It is estimated that there is potential to reduce deaths by up to 10,000 per annum by the optimisation of care

The Sepsis toolkit provides a collection of tools, knowledge, and current guidance to support the identifying and appropriate management of patients with sepsis. The toolkit is aimed at GPs and healthcare professionals assessing people in the community with acute infection. The resources also include information for patients and those close to them to look for when concerned about a sudden deterioration in a person's health in the presence of infection.

- RCGP Sepsis Clinical Spotlight and Clinical Priority Overview and Impact Report 2016-17

Clinical resources and guidance for practices ⊕

National reports and legislation ⊕

Resources for patients and carers ⊕

Resources for training and appraisal ⊕

Background and information for commissioners ⊕

Could this be sepsis?

For a person of **any age** with a possible infection:

- Think **could this be sepsis?** if the person presents with **signs or symptoms that indicate infection**, even if they do not have a high temperature.
- Be aware that people with sepsis may have non-specific, non-localised presentations (for example, feeling very unwell).
- Pay particular attention to concerns expressed by the person and their family or carer.
- Take particular care in the assessment of people who might have sepsis if they, or their parents or carers, are unable to give a good history (for example, people with English as a second language or people with communication problems).

Assessment

Assess people with suspected infection to identify:

- possible source of infection
- risk factors for sepsis **(see right-hand box)**
- indicators of clinical of concern such as new onset abnormalities of behaviour, circulation or respiration.

Healthcare professionals performing a remote assessment of a person with suspected infection should seek to identify factors that increase risk of sepsis or indications of clinical concern.

Risk factors for sepsis

- The very young (under 1 year) and older people (over 75 years) or very frail people.
- Recent trauma or surgery or invasive procedure (within the last 6 weeks).
- Impaired immunity due to illness (for example, diabetes) or drugs (for example, people receiving long-term steroids, chemotherapy or immunosuppressants).
- Indwelling lines, catheters, intravenous drug misusers, any breach of skin integrity (for example, any cuts, burns, blisters or skin infections).

If at risk of neutropenic sepsis – refer to secondary or tertiary care

Additional risk factors for women who are pregnant or who have been pregnant, given birth, had a termination or miscarriage within the past 6 weeks:

- gestational diabetes, diabetes or other comorbidities
- needed invasive procedure such as caesarean section, forceps delivery, removal of retained products of conception
- prolonged rupture of membranes
- close contact with someone with group A streptococcal infection
- continued vaginal bleeding or an offensive vaginal discharge.

Sepsis not suspected

- no clinical cause for concern
- no risk factors for sepsis.

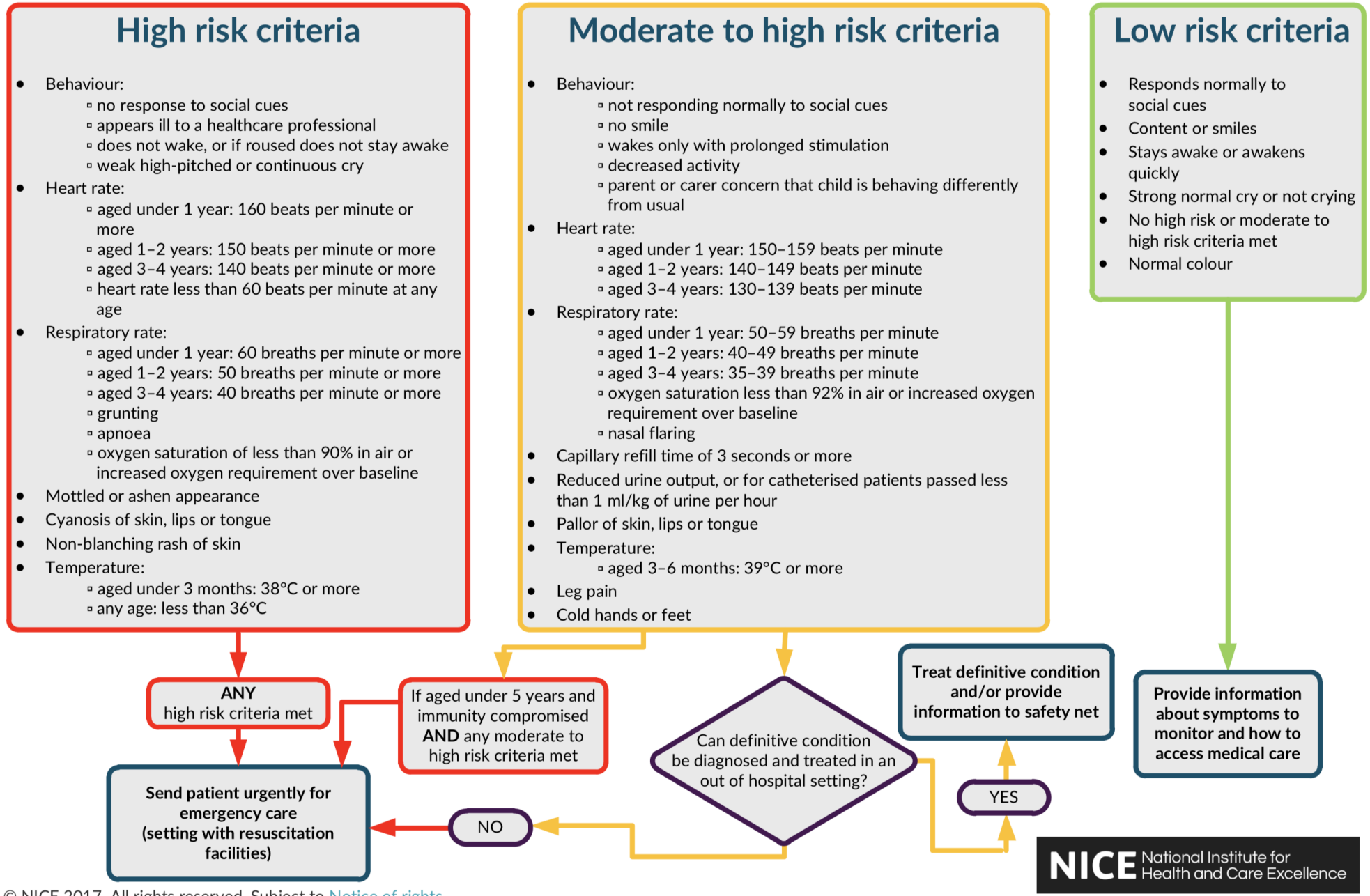
Use clinical judgement to treat the person, using NICE guidance relevant to their diagnosis when available.

SEPSIS SUSPECTED

If sepsis is suspected, use a structured set of observations to assess people in a face-to-face setting.
Consider using early warning scores in acute hospital settings.
Parental or carer concern is important and should be acknowledged.

Stratify risk of severe illness and death from sepsis using the tool appropriate to age and setting > > >

Sepsis risk stratification tool: children aged under 5 years out of hospital



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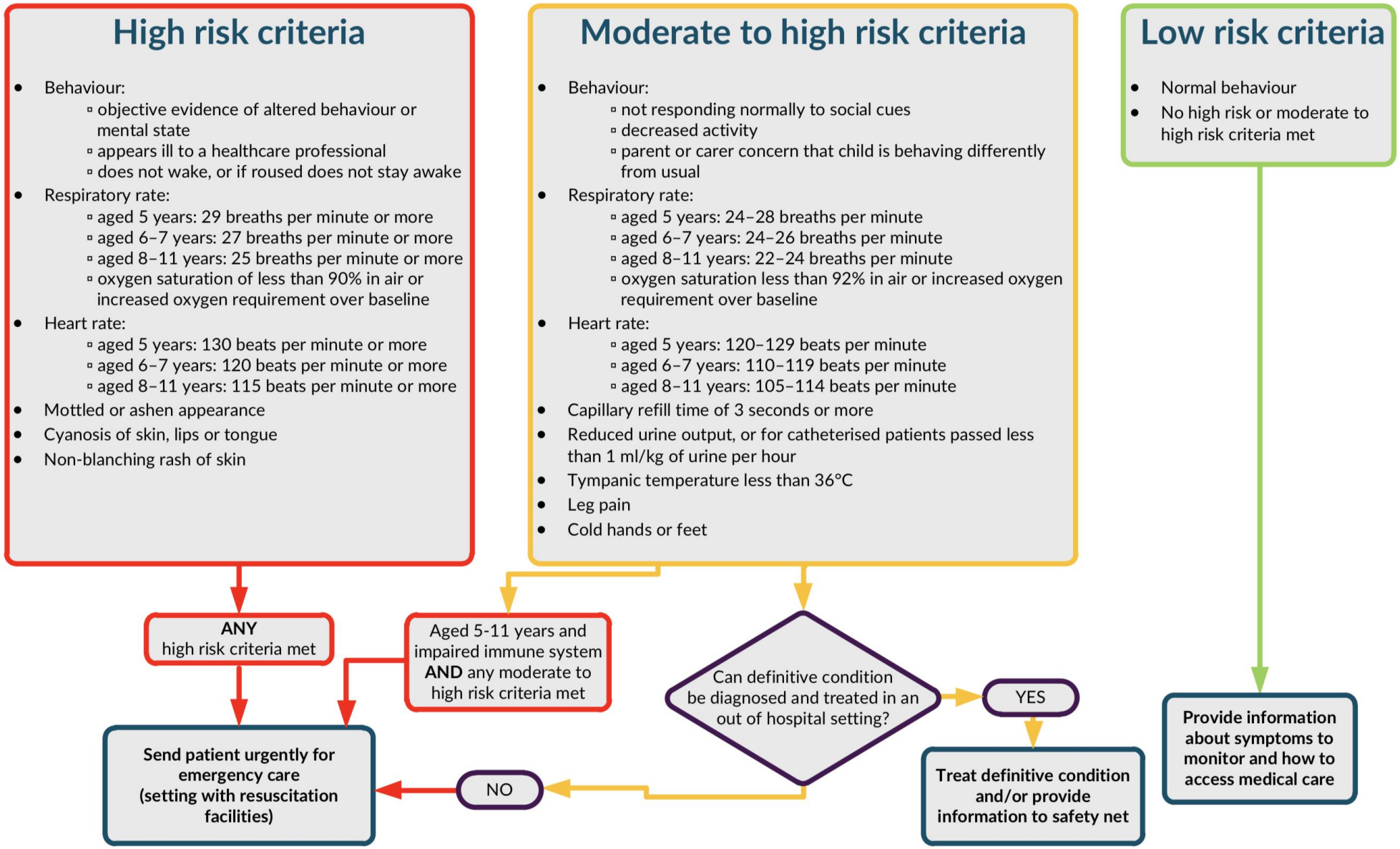
Sepsis risk stratification tool: children aged 5-11 years out of hospital



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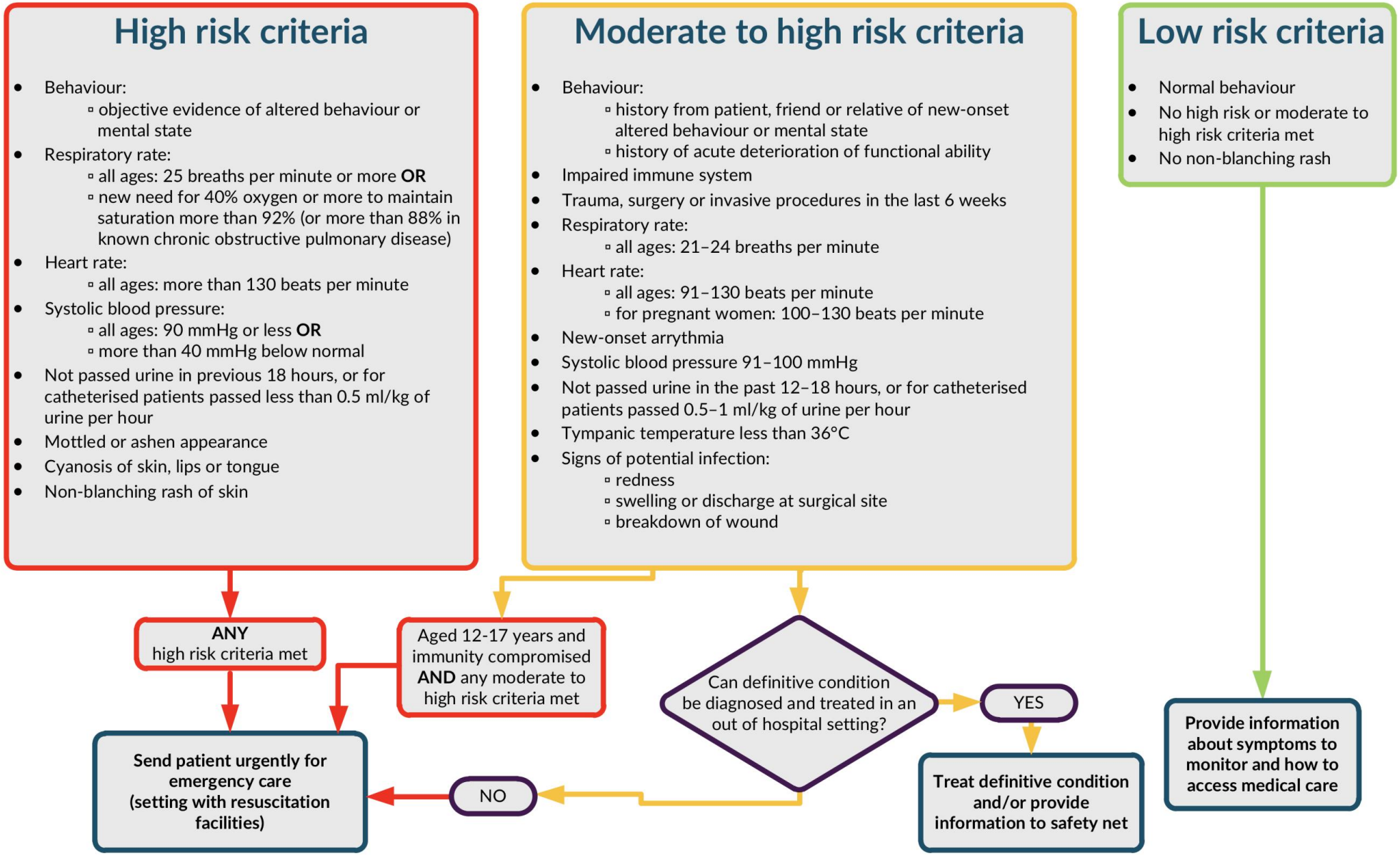
Sepsis risk stratification tool: children and young people aged 12-17 years out of hospital



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Sepsis risk stratification tool: people aged 18 years and over out of hospital

High risk criteria

- Behaviour:
  - objective evidence of altered behaviour or mental state
- Respiratory rate:
  - 25 breaths per minute or more **OR**
  - new need for 40% oxygen or more to maintain saturation more than 92% (or more than 88% in known chronic obstructive pulmonary disease)
- Heart rate:
  - more than 130 beats per minute
- Systolic blood pressure:
  - 90 mmHg or less **OR**
  - more than 40 mmHg below normal
- Not passed urine in previous 18 hours, or for catheterised patients passed less than 0.5 ml/kg of urine per hour
- Mottled or ashen appearance
- Cyanosis of skin, lips or tongue
- Non-blanching rash of skin

Moderate to high risk criteria

- Behaviour:
  - history from patient, friend or relative of new-onset altered behaviour or mental state
  - history of acute deterioration of functional ability
- Impaired immune system
- Trauma, surgery or invasive procedures in the last 6 weeks
- Respiratory rate:
  - 21–24 breaths per minute
- Heart rate:
  - 91–130 beats per minute
  - for pregnant women: 100–130 beats per minute
- New-onset arrythmia
- Systolic blood pressure 91–100 mmHg
- Not passed urine in the past 12–18 hours, or for catheterised patients passed 0.5–1 ml/kg of urine per hour
- Tympanic temperature less than 36°C
- Signs of potential infection:
  - redness
  - swelling or discharge at surgical site
  - breakdown of wound

Low risk criteria

- Normal behaviour
- No high risk or moderate to high risk criteria met

ANY
high risk criteria met

Send patient urgently for emergency care (setting with resuscitation facilities)

Can definitive condition be diagnosed and treated in an out of hospital setting?

NO

YES

Treat definitive condition and/or provide information to safety net

Provide information about symptoms to monitor and how to access medical care

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G.P. Paediatric Sepsis Decision Support Tool

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To be applied to all children under 5 years who have a suspected infection or have clinical observations outside normal limits

1. In the context of presumed infection, are any of the following true:

(consider pneumonia, meningitis/encephalitis, urinary tract infection, intra-abdominal infection, acquired bacteraemia (e.g. Group B Strep))

	Tick
Patient looks very unwell	☐
Parent or carer is very concerned	☐
There is ongoing deterioration	☐
Physiology is abnormal for this patient	☐

N → Low risk of sepsis. Consider other diagnoses. Use clinical judgment and/or standard protocols.

Y ↓

2. Is ONE Red Flag present?

	Tick
Unresponsive to social cues/ difficult to rouse	☐
Health professional very worried	☐
Weak, high pitched or continuous cry	☐
Grunting respiration or apnoeic episodes	☐
SpO_2 < 90%	☐
Severe tachypnoea (see table)	☐
Severe tachycardia (see table)/ bradycardia < 60	☐
No wet nappies/ not passed urine in last 18 h	☐
Non-blanching rash or mottled/ ashen/ cyanotic	☐
Temperature < 36°C	☐
If under 3 months, temperature > 38°C	☐

N → Give safety netting advice: call 999 if child deteriorates rapidly, or call 111/ arrange to see GP if condition fails to improve or gradually worsens. Signpost parent to available resources as appropriate.

N ↑

3. Any Amber Flag criteria?

	Tick
Parent or clinician remains very concerned	☐
Abnormal response to social cues/ not smiling	☐
Reduced activity, very sleepy	☐
Parent/ carer reports behaviour is abnormal	☐
Moderate tachypnoea (see table)	☐
SpO_2 <91% OR nasal flaring	☐
Moderate tachycardia (see table)	☐
Capillary refill ≥3 seconds	☐
Reduced urine output	☐
Pale or flushed	☐
Leg pain or cold extremities	☐

Y ↓

Sepsis likely

Use clinical judgment to determine whether child can be managed in community setting. If treating in the community, consider:

- planned second assessment +/- blood results
- brief written handover to colleagues
- specific safety netting advice

If immunity impaired refer for urgent hospital assessment

Y ↓

Red Flag Sepsis!

Dial 999, arrange blue light transfer
Administer oxygen to maintain saturations >94%
Write a brief clear handover
Ensure crew pre-alert as 'Red Flag Sepsis'

Age	Tachypnoea		Tachycardia	
	Severe	Moderate	Severe	Moderate
< 1 y	≥ 60	50-59	≥ 160	150-159
1-2 y	≥ 50	40-49	≥ 150	140-149
3-4 y	≥ 40	35-39	≥ 140	130-139

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G.P. Paediatric Sepsis Decision Support Tool

THE UK SEPSIS TRUST

To be applied to all children aged 5-11 years who have a suspected infection or have clinical observations outside normal limits

1. In the context of presumed infection, are any of the following true:

(consider pneumonia, meningitis/encephalitis, urinary tract infection, intra-abdominal infection, acquired bacteraemia (e.g. Group B Strep))

	Tick
Patient looks very unwell	☐
Parent or carer is very concerned	☐
There is ongoing deterioration	☐
Physiology is abnormal for this patient	☐

N → Low risk of sepsis. Consider other diagnoses. Use clinical judgment and/or standard protocols.

Y ↓

2. Is ONE Red Flag present?

	Tick
Objective change in behaviour or mental state	☐
Doesn't wake if roused or won't stay awake	☐
Looks very ill	☐
SpO_2 < 90% on air	☐
Severe tachypnoea (see chart)	☐
Severe tachycardia (see chart)	☐
Bradycardia (< 60 per minute)	☐
Not passed urine in last 18 h	☐
Mottled, ashen or blue skin, lips or tongue	☐
Temperature < 36°C	☐

N → Give safety netting advice: call 999 if child deteriorates rapidly, or call 111/ arrange to see GP if condition fails to improve or gradually worsens. Signpost parent to available resources as appropriate.

N ↑

3. Any Amber Flag criteria?

	Tick
Parent or clinician remains very concerned	☐
Behaving abnormally/ not wanting to play	☐
Significantly decreased activity/ parental concern	☐
SpO_2 < 92% on air	☐
Moderate tachypnoea (see chart)	☐
Moderate tachycardia (see chart)	☐
Cap refill time ≥ 3 seconds	☐
Reduced urine output	☐
Leg pain	☐
Cold feet or hands	☐

Y ↓

Sepsis likely

Use clinical judgment to determine whether child can be managed in community setting. If treating in the community, consider:

- planned second assessment +/- blood results
- brief written handover to colleagues
- specific safety netting advice

If immunity impaired refer for urgent hospital assessment

Y ↓

Red Flag Sepsis!

Dial 999, arrange blue light transfer
Administer oxygen to maintain saturations >94%
Write a brief clear handover
Ensure crew pre-alert as 'Red Flag Sepsis'

Age	Tachypnoea		Tachycardia	
	Severe	Moderate	Severe	Moderate
5 y	≥ 29	27-28	≥ 130	120-129
6-7 y	≥ 27	24-26	≥ 120	110-119
8-11 y	≥ 25	22-24	≥ 115	105-114

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General Practice Sepsis Decision Support Tool

THE UK SEPSIS TRUST

To be applied to all non-pregnant adults & young people 12 years and over with fever (or recent fever) symptoms

N.B: there is no systems substitute for clinical experience & acumen, but Red Flag Sepsis will help with early identification of adults & older children with systemic response to infection

1. In the context of presumed infection, are any of the following true:

(common sources: chest, UTI, abdominal organs)

	Tick
Patient looks very unwell	☐
Family or carer is very concerned	☐
There is ongoing deterioration	☐
Physiology is abnormal for this patient	☐

N → Low risk of sepsis. Consider other diagnoses.

Use clinical judgement and/or standard protocols.

Give safety netting advice: call 999 if patient deteriorates rapidly, or call 111/ arrange to see GP if condition fails to improve or gradually worsens. Signpost to available resources as appropriate.

Y ↓

2. Is ONE Red Flag present?

	Tick
New deterioration in GCS/ AVPU	☐
Systolic B.P ≤90 mmHg (or ≥40 mmHg below normal)	☐
Heart rate ≥130 per minute	☐
Respiratory rate ≥25 per minute	☐
Needs oxygen to keep SpO_2 92% (88% in COPD)	☐
Non-blanching rash or mottled/ ashen/ cyanotic	☐
Not passed urine in last 18 hours	☐
Urine output less than 0.5 ml/kg/hr if catheterised	☐
Recent chemotherapy (within last 6 weeks)	☐

N →

3. Is any ONE Amber Flag present?

	Tick
Relatives worried about mental state/ behaviour	☐
Acute deterioration in functional ability	☐
Immunosuppressed (without recent chemotherapy)	☐
Trauma, surgery or procedure in last 6 weeks	☐
Respiratory rate 21-24 OR dyspnoeic	☐
Systolic B.P 91-100 mmHg	☐
Heart rate 91-130 OR new dysrhythmia	☐
Not passed urine in last 12-18 hours	☐
Tympanic temperature ≤36°C	☐
Clinical signs of wound, device or skin infection	☐

If under 18 & immunity impaired treat as Red Flag Sepsis

N ↑

Y ↓

Sepsis likely

Use clinical judgment to determine whether patient can be managed in community setting. If treating in the community, consider:

- planned second assessment +/- blood results
- brief written handover to colleagues
- specific safety netting advice

Y ↓

Red Flag Sepsis!

Immediate actions:

Dial 999

Arrange blue light transfer

Administer oxygen to maintain saturations >94%

Communication:

Write a brief clear handover including observations and antibiotic allergies where present

Ensure Paramedics pre-alert as 'Red Flag Sepsis'

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G.P. Maternal Sepsis Decision Support Tool

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To be applied to all women who are pregnant or up to six weeks postpartum (or after the end of pregnancy if pregnancy did not end in a birth) who have a suspected infection or have clinical observations outside normal limits

1. In the context of presumed infection, are any of the following true:

(common sources: pneumonia, UTI, breast abscess/ mastitis, endometritis, chorioamnionitis, infected caesarean or perineal wound, influenza, intra-abdominal infection)

	Tick
Patient looks very unwell	☐
Family or carer is very concerned	☐
There is ongoing deterioration	☐
Physiology is abnormal for this patient	☐

N → Low risk of sepsis. Consider other diagnoses.

Use clinical judgment and/or usual guidelines.

Give safety netting advice: call 999 if patient deteriorates rapidly, or call 111/ arrange to see GP if condition fails to improve or gradually worsens. Signpost to available resources as appropriate. Consider obstetric assessment.

Y ↓

2. Is ONE maternal Red Flag present?

	Tick
Responds only to voice or pain/ unresponsive	☐
Systolic B.P ≤ 90 mmHg	☐
Heart rate ≥ 130 per minute	☐
Respiratory rate ≥ 25 per minute	☐
Needs oxygen to keep SpO_2 ≥92%	☐
Non-blanching rash, mottled/ ashen/ cyanotic	☐
Not passed urine in last 18 hours	☐
Lactate ≥2 mmol/l	☐

N →

3. Is any Maternal Amber Flag present?

	Tick
Relatives worried about mental state/ behaviour	☐
Acute deterioration in functional ability	☐
Respiratory rate 21-24 OR dyspnoeic	☐
Heart rate 100-129 OR new dysrhythmia	☐
Systolic BP 91-100 mmHg	☐
Not passed urine in last 12-18 hours	☐
Temperature < 36°C	☐
Immunosuppressed/ diabetes/ gestational diabetes	☐
Has had invasive procedure in last 6 weeks (e.g. CS, forceps delivery, ERPC, cerclage, CVs, miscarriage, termination)	☐
Prolonged rupture of membranes	☐
Close contact with GAS	☐
Bleeding/ offensive wound/ vaginal discharge	☐

If immunity also impaired treat as Red Flag Sepsis

N ↑

Y ↓

Sepsis likely

Use clinical judgment to determine whether patient can be managed in community setting. If treating in the community, consider:

- planned second assessment with blood results
- brief written handover to colleagues
- specific safety netting advice

Y ↓

Red Flag Sepsis!

Immediate actions:

Dial 999

Arrange blue light transfer

Administer oxygen to maintain saturations >94%

Communication:

Write a brief clear handover including observations and antibiotic allergies (where present)

Ensure Paramedics pre-alert as 'Red Flag Sepsis'

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NEWS2

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- NEWS2 is a scoring system which can be used to assess severity of acute illness
- Measure and identify deterioration in patients condition
- Prompt a timely response

NEWS2

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Physiological parameter	Score						
	3	2	1	0	1	2	3
Respiration rate (per minute)	≤8		9–11	12–20		21–24	≥25
SpO_2 Scale 1 (%)	≤91	92–93	94–95	≥96			
SpO_2 Scale 2 (%)	≤83	84–85	86–87	88–92 ≥93 on air	93–94 on oxygen	95–96 on oxygen	≥97 on oxygen
Air or oxygen?		Oxygen		Air			
Systolic blood pressure (mmHg)	≤90	91–100	101–110	111–219			≥220
Pulse (per minute)	≤40		41–50	51–90	91–110	111–130	≥131
Consciousness				Alert			CVPU
Temperature (°C)	≤35.0		35.1–36.0	36.1–38.0	38.1–39.0	≥39.1	

NEWS2

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NEW score	Clinical risk	Response
Aggregate score 0–4	Low	Ward-based response
Red score Score of 3 in any individual parameter	Low–medium	Urgent ward-based response*
Aggregate score 5–6	Medium	Key threshold for urgent response*
Aggregate score 7 or more	High	Urgent or emergency response**

- Think sepsis if NEWS ≥5
- NEWS ≥5 has a 13% mortality
- NEWS≥5 and 1 Red flag Mortality = 23%

NEWS2 in practice

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https://vimeo.com/208284106

NEWS2

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- Only for patients over age 16
- Not validated in primary care
- Not a replacement for clinical judgment
- But is very useful for patient handover

qSOFA

- New confusion/altered mental state
- Increased respiratory rate
- Hypotension

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Ambulance response

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- ”Red flag sepsis”
- Give them the NEWS2 score
- Category 2 response – 18mins – up to 40mins.

Documentation

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- Documentation is important – including physiological parameters and safety net advice
- Use templates – Examination findings

Examination findings template

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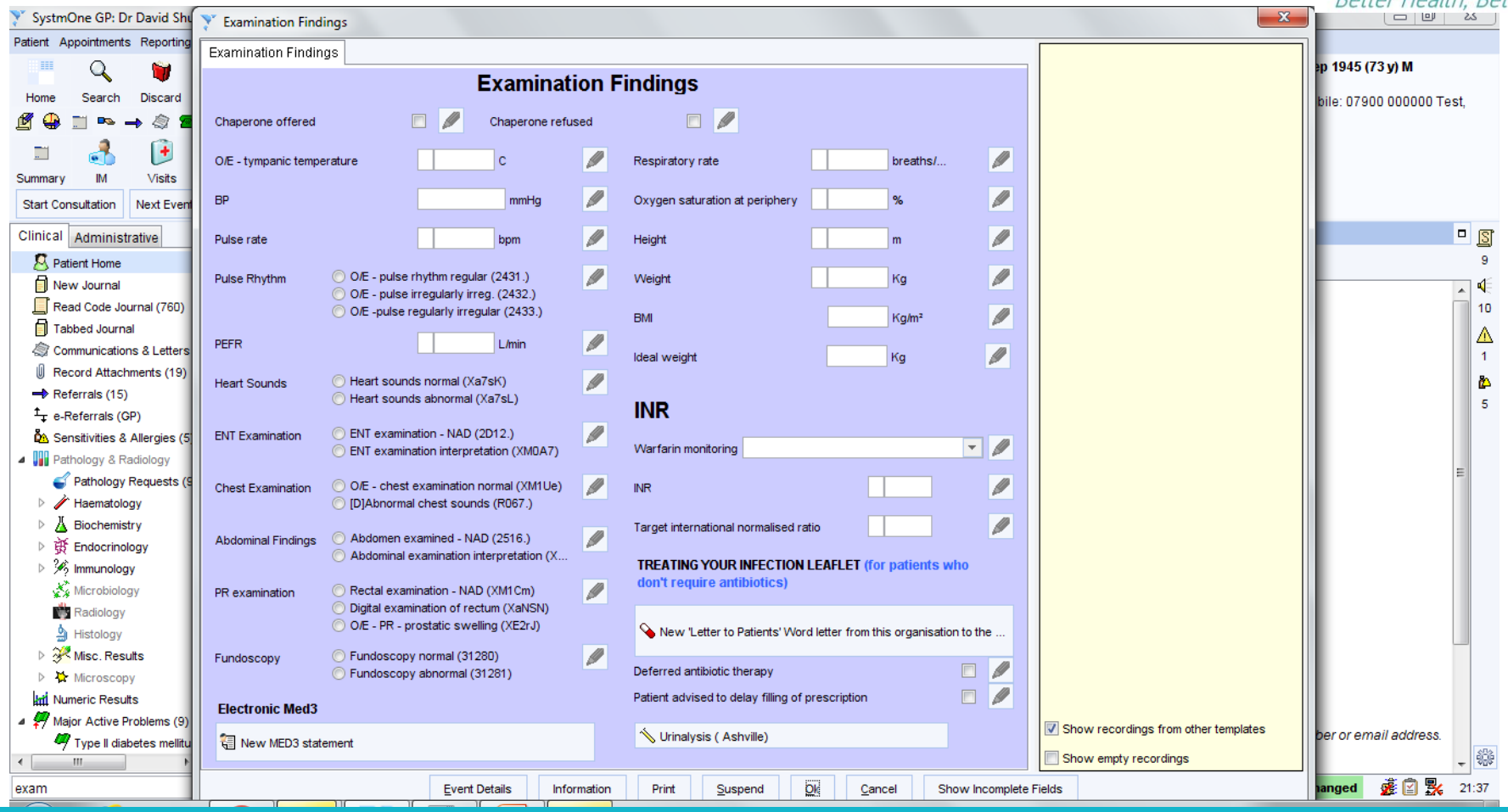

Effective Safety Netting

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Slurred speech or confusion.
Extreme shivering or muscle pain.
Passing no urine (in a day).
Severe breathlessness.
It feels like you're going to die.
Skin mottled or discoloured.

- Reinforce with patient information leaflet

Treating your infection

Crystal Mark 20454
Clarity approved by Plain English Campaign

Patient Name _____

Your doctor or nurse recommends that you self-care ☐ **Back-up antibiotic prescription issued** ☐

Your infection	Usually lasts	How to treat yourself better for these infections, now and next time	When should you get help: Contact your GP practice or contact NHS 111 (England), NHS 24 (Scotland dial 111), or NHS Direct (Wales dial 0845 4647)
☐ Middle-ear infection	4 days	• Have plenty of rest. • Drink enough fluids to avoid feeling thirsty. • Ask your local pharmacist to recommend medicines to help your symptoms or pain (or both). • Fever is a sign the body is fighting the infection and usually gets better by itself in most cases. You can use paracetamol (or ibuprofen) if you or your child are uncomfortable as a result of a fever. • Other things you can do suggested by GP or nurse:	**1. to 8. are possible signs of serious illness and should be assessed urgently.** **Phone for advice if you are not sure how urgent the symptoms are.** 1. If you develop a severe headache and are sick. 2. If your skin is very cold or has a strange colour, or you develop an unusual rash. 3. If you feel confused or have slurred speech or are very drowsy. 4. If you have difficulty breathing. Signs can include: o breathing quickly o turning blue around the lips and the skin below the mouth o skin between or above the ribs getting sucked or pulled in with every breath. 5. If you develop chest pain. 6. If you have difficulty swallowing or are drooling. 7. If you cough up blood. 8. If you are feeling a lot worse. **Less serious signs that can usually wait until the next available GP appointment:** 9. If you are not improving by the time given in the 'Usually lasts' column. 10. In children with middle-ear infection: if fluid is coming out of their ears or if they have new deafness. 11. Other .....
☐ Sore throat	7 days		
☐ Common cold	10 days		
☐ Sinusitis	18 days		
☐ Cough or bronchitis	21 days		
☐ Other infection:	..... days		

Back-up antibiotic prescription to be collected after ☐ days only if you do not feel better or you feel worse.

Collect from: ☐ GP reception ☐ GP or nurse ☐ Pharmacy

- Colds, most coughs, sinusitis, ear infections, sore throats, and other infections often get better without antibiotics, as your body can usually fight these infections on its own.
- The more we use antibiotics, the greater the chance that bacteria will become resistant to them so that they no longer work on our infections.
- Antibiotics can cause side effects such as rashes, thrush, stomach pains, diarrhoea, reactions to sunlight, other symptoms, or being sick if you drink alcohol with metronidazole.

Never share antibiotics and always return any unused antibiotics to a pharmacy for safe disposal

Leaflet developed in collaboration with these professional societies.

Public Health England · Royal College of General Practitioners · The British Society for Antimicrobial Chemotherapy · NHS Scotland · Royal College of Nursing · Royal Pharmaceutical Society · Infection Prevention Society · British Infection Association

Recommendations

Barnsley Healthcare Federation

Better Health, Better Care, for a Better Barnsley

- THINK SEPSIS

- Consider having a sepsis champion in your practice

BHF Sepsis response

Barnsley Healthcare Federation

Better Health, Better Care, for a Better Barnsley

- Staff awareness – regular agenda item on team meetings
- Staff training – e LFH = mandatory
- Decision support tools and NEWS2 available in all clinical rooms
- Activated sepsis protocol for OOH module of systemOne
- GRASP – Fever tool

Resources

Barnsley Healthcare Federation

Better Health, Better Care, for a Better Barnsley

- E-learning for Health
- RCGP – Sepsis toolkit
- RCGP – Building a sepsis aware system around general practice
- Sepsis trust