

# Public Health

- Doctor reports suspected meningitis or meningococcal disease to CCDC/CPHM who arranges prophylaxis for close personal contacts (if meningococcal/Hib or institutional outbreak of pneumococcal).
- Where local protocol agreed with public health, ward staff may give prophylaxis.
- Isolate patient for first 24 hours.
- Health care staff only need prophylaxis if their mouth or nose is splattered with large particle droplets from the respiratory tract of a patient with meningococcal disease, or conjunctivitis develops within ten days. This is unlikely to occur except when using suction during airway management, inserting an oro/nasopharyngeal airway, intubating, or if the patient coughs in your face.

## About Meningitis Research Foundation

Meningitis Research Foundation is a national registered charity whose vision is a world free from meningitis and septicaemia. The Foundation operates a **Freephone 24 hour helpline 080 8800 3344**. At all hours of the day or night trained staff and qualified nurses speak to callers, give information to people dealing with a case, and offer support and befriending to patients and families affected.

The Foundation also produces other resources for health professionals, including:

- **Early Management algorithms for paediatric and adult settings**
- **Booklet and CDRom for doctors in training in a hospital setting**
- **Booklets and quick reference cards for primary care and ambulance personnel**

These, along with a range of resources for the public, are available to order or download from our website **free of charge: [www.meningitis.org](http://www.meningitis.org)**

**If this card has helped you, please consider helping us. We rely entirely on donations to continue our work, so if you would like to find out about fundraising for us, or to make a donation, please contact your local office below.**

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## Vital signs for front line nurses

### Early Recognition of Meningitis and Septicaemia

Meningitis and septicaemia can kill in hours. **Septicaemia** and **meningitis** can occur on their own but often appear together. **Septicaemia without signs of meningitis is far more life-threatening.**

**Early recognition depends on knowing what to look for:**

### Observations

- Temperature
- Heart rate
- Respiratory rate
- Oxygen saturation
- Capillary refill time
- Conscious level **AVPU** - Assess best response patient can make: **Alert?**

Responds to **Voice?** **Urgent**  
Responds to **Pain?** **Emergency**  
**Unresponsive?** **Emergency**

- Check for rash all over
- Blood pressure - check this if other signs outside normal

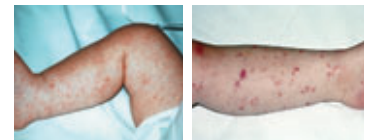
### Non-blanching rash

- Typical of septicaemia
- Pin-prick spots, purple blotches, bruises or blood blisters
- May be absent (especially in pure meningitis), scanty, or rapidly evolving (in septicaemia).

### NORMAL VALUES OF VITAL SIGNS

Age (years)	Heart Rate per minute	Respiratory Rate per minute	Systolic Blood Pressure
< 1	110-160	30-40	70-90
1-2	100-150	25-35	80-95
2-5	95-140	25-30	80-100
5-12	80-120	20-25	90-110
over 12	60-100	15-20	100-120

*Oxygen Saturation: normal value is >95% in air. If SaO<sub>2</sub> monitor is not picking up, check perfusion - capillary refill should be <2 seconds*



*maculopapular rash with scanty petechiae<sup>1</sup>*

*early purpuric rash of septicaemia<sup>1</sup>*

**Up to 30% of cases start with a blanching rash.**

# Findings

## SEPTICAEMIA

**Septicaemia** causes shock which can lead to multi-organ failure.

### LOOK FOR

- Limb or joint pain - may be severe. Isolated limb pain is a well established symptom of septicaemia
- Pallor, mottled skin
- Cold hands and feet
- Tachycardia
- Tachypnoea
- Rigors
- Conscious level:  
**early in shock** - children often alert and able to speak



Child lucid despite advancing septicaemia

### as shock advances

- babies - limp and floppy
- older children and adults - unable to stand
- Metabolic acidosis - blood gas (arterial, capillary or venous) can confirm shock. Base deficit worse than  $-5$  mmol/l is significant.

### LATE SIGNS

- Impaired consciousness - likely to be late in children
- Hypotension
- Cyanosis

## MENINGITIS

**Meningitis** causes raised intracranial pressure, which can lead to coning (brain stem herniation) and brain death.

### LOOK FOR

- Neck stiffness, headache, photophobia in older children and adults
  - Neck stiffness, photophobia uncommon in young children - their absence should not be reassuring
- All children - poorly responsive, staring, difficult to wake. Parents may report poor eye contact.
- Babies - irritable with a high pitched cry, particularly when handled
- Babies - stiff body, jerky movements, abnormal tone
- Teenagers and adults may be combative, confused or aggressive - you may suspect drug/alcohol use
- Seizures

### LATE SIGNS

- Raised Intracranial Pressure:
  - Raised BP, slow pulse rate
  - Glasgow Coma Score  $<8$  or rapidly falling
  - Dilated, unequal, or poorly reacting pupils
- In babies, tense/bulging fontanelle

## MENINGOCOCCAL DISEASE

First symptoms as for self-limiting viral illnesses. Children under five – **fever** first. Older children and adolescents – **headache. Vomiting and nausea** – all ages.

**Red Flag Symptoms** of septicaemia and circulatory shut-down: **limb pain, pale or mottled skin, and cold extremities** can appear 5 or more hours earlier than classic symptoms.

Other early symptoms: **drowsy with rapid or laboured breathing** and sometimes **diarrhoea** in younger children; **thirst** in older children/teenagers.

Classic symptoms: **rash** is often the first one. **Neck stiffness** and **photophobia** are usually later and are not reliable signs in babies/ young children.

## Action

- 1 Very sick patient (with or without rash): shock/depressed conscious level/seizures?**
  - Resus, record all vital signs and put on continuous monitor, call Senior Doctor immediately, ensure i.v. antibiotics are given, ask for blood gas.
- 2 Non-blanching rash with fever (or history of fever)?**
  - Record all vital signs and put on continuous monitor, call Senior Doctor immediately, ensure i.v. antibiotics are given, ask for blood gas.
- 3 Suspected meningitis with or without rash?**
  - Half hourly vital signs, ensure prompt medical review, ensure i.v. antibiotics are given. If rash is non-blanching, treat as in 2 above.
- 4 Possible early septicaemia, no rash or blanching rash?**
  - Half hourly vital signs, check for (developing) rash, ensure prompt medical review, ask for blood gas.

3&4 *If vital signs change, consider if patient getting sicker and needs more urgent treatment as in 1 or 2.*

**Refer to Early Management protocols for paediatric and adult settings (details overleaf)**

It is rarely possible to exclude meningitis or septicaemia in a patient with non-specific symptoms. If you are sending a patient home it is important to provide a safety net. Give them information (see back page for contact details to order free patient information) and encourage them to seek medical help if it gets worse, even if it is shortly after you've seen them.