

# PHYSICAL SIGNS IN CHILDREN WITH MENINGOCOCCAL DISEASE

ORGAN SYSTEM	SEPTICAEMIA	MENINGITIS
<b>Respiratory</b>	<ul style="list-style-type: none"> <li>Increased respiratory rate and work of breathing occur early, secondary to acidosis and hypoxia as circulatory failure develops</li> </ul>	<ul style="list-style-type: none"> <li>No changes early in disease</li> <li>Abnormal breathing patterns seen late with critically raised intracranial pressure. (Vary from hyperventilation to Cheyne-Stokes breathing or apnoea)</li> </ul>
<b>Cardiovascular</b>	<p><b>Careful examination of this system is the key to recognition of septicaemia. Clinical features of circulatory failure (shock) develop:</b></p> <ul style="list-style-type: none"> <li>Tachycardia is an early and important sign</li> <li>Peripheral vasoconstriction results in pallor, cold hands and feet, and mottling</li> <li>Capillary refill time &gt;2 seconds, especially in conjunction with other signs, suggests shock</li> <li>BP is normal until late in septicaemia. Hypotension is a pre-terminal sign in children</li> </ul>	<ul style="list-style-type: none"> <li>No changes early in disease</li> <li>Later, raised intracranial pressure leads to bradycardia and hypertension</li> </ul>
<b>CNS</b>	<ul style="list-style-type: none"> <li>Children have a normal conscious level until late in the illness and they may appear alert and responsive</li> <li>Hypoxia and hypoperfusion eventually lead to a decreased conscious level: this is a late and a pre-terminal sign in shock</li> <li>NO neck stiffness or photophobia occurs in septicaemia</li> </ul>	<p><b>CNS function most likely to be abnormal</b></p> <ul style="list-style-type: none"> <li>Irritability, drowsiness, confusion and decreased conscious level as intracranial pressure rises. <b>Babies</b> may have a vacant expression/full fontanelle. <b>Teenagers</b> can become confused and combative</li> <li>Neck stiffness and photophobia are uncommon signs in early meningitis in young children.</li> </ul>
<b>Renal</b>	<ul style="list-style-type: none"> <li>Decreased urine output occurs early in shock</li> </ul>	<ul style="list-style-type: none"> <li>No change in meningitis</li> </ul>

Death	Results from cardiovascular failure (shock)	Results from raised intracranial pressure
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## Normal Values of Vital Signs From Advanced Paediatric Life Support Manual

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

**RASH:** The rash of meningococcal disease can start as a blanching rash in up to a third of patients: remember to check for underlying signs of meningitis and septicaemia in children who present with a maculopapular rash.

Patients with meningitis tend to have a more scanty (or absent) rash than those with septicaemia. Ideally, the whole skin surface of a febrile patient without an obvious cause for fever should be checked.



Maculopapular rash with scanty petechiae. †



Classic purpuric rash.



Purpuric rash on dark skin.



Petechial rash on conjunctivae. †

### Benzylopenicillin dosage (BNF)

(except in penicillin anaphylaxis)

Adult and child aged 10 or older: **1200 mg**

Child 1-9 years: **600 mg**

Infant: **300 mg**

[www.meningitis.org](http://www.meningitis.org)

**Meningitis**  
Research Foundation

# **Meningococcal Meningitis and Septicaemia**

**Wall Chart**

