

PHYSICAL SIGNS IN CHILDREN WITH MENINGOCOCCAL DISEASE

ORGAN SYSTEM	SEPTICAEMIA	MENINGITIS
Respiratory	<ul style="list-style-type: none"> Increased respiratory rate and work of breathing occur early, secondary to acidosis and hypoxia as circulatory failure develops 	<ul style="list-style-type: none"> No changes early in disease Abnormal breathing patterns seen late with critically raised intracranial pressure. (Vary from hyperventilation to Cheyne-Stokes breathing or apnoea)
Cardiovascular	<p>Careful examination of this system is the key to recognition of septicaemia. Clinical features of circulatory failure (shock) develop:</p> <ul style="list-style-type: none"> Tachycardia is an early and important sign Peripheral vasoconstriction results in pallor, cold hands and feet, and mottling Capillary refill time ≥ 3 seconds on forehead or sternum is abnormal, ≥ 4 seconds on peripheries in conjunction with other signs suggests shock BP is normal until late in septicaemia. Hypotension is a pre-terminal sign 	<ul style="list-style-type: none"> No changes early in disease Later, raised intracranial pressure leads to bradycardia and hypertension
CNS	<ul style="list-style-type: none"> Children have a normal conscious level until late in the illness and they may appear alert and responsive Hypoxia and hypoperfusion eventually lead to a decreased conscious level: this is a late and a pre-terminal sign in shock NO neck stiffness or photophobia occurs in septicaemia 	<p>CNS function most likely to be abnormal</p> <ul style="list-style-type: none"> Irritability, drowsiness, confusion and decreased conscious level as intracranial pressure rises. Babies may have a vacant expression/full fontanelle. Teenagers can become confused and combative Neck stiffness and photophobia are uncommon signs in early meningitis in young children.
Renal	<ul style="list-style-type: none"> Decreased urine output occurs early in shock 	<ul style="list-style-type: none"> No change in meningitis

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. †

Benzylpenicillin dosage (BNF)

(except in severe penicillin allergy)

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

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

Infant: **300 mg**

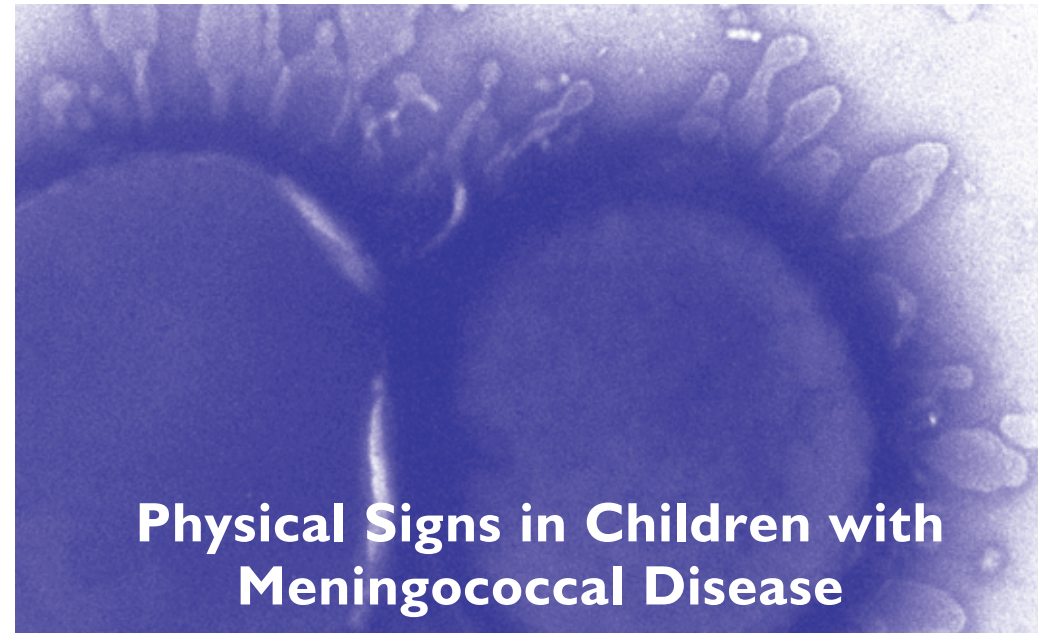
www.meningitis.org



† Courtesy: D A Warrell

Meningococcal Meningitis and Septicaemia

Wall Chart



Physical Signs in Children with
Meningococcal Disease