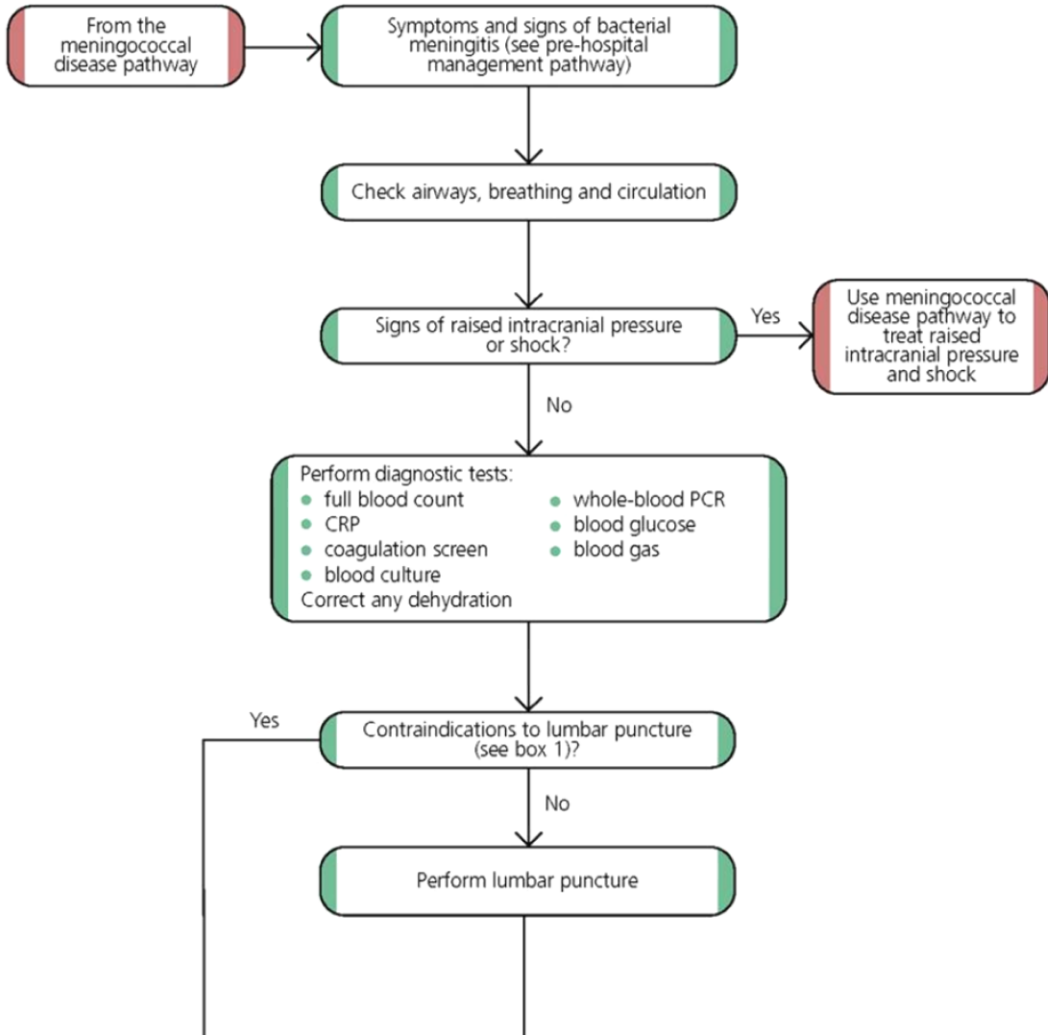


Bacterial meningitis pathway



Children younger than 3 months

Suspected disease

- Treat without delay using intravenous cefotaxime plus either amoxicillin or ampicillin
- Ceftriaxone may be used instead of cefotaxime unless the baby is premature or has jaundice, hypoalbuminaemia or acidosis, or is receiving calcium-containing infusions⁴
- If recently overseas, or prolonged or multiple antibiotic exposure, add vancomycin
- If increased CSF white cell count and risk of tuberculous meningitis, evaluate for diagnosis of tuberculous meningitis⁵
- Consider herpes simplex encephalitis as an alternative diagnosis
- If tuberculous meningitis is part of differential diagnosis give the appropriate antibiotic treatment⁵
- If herpes simplex meningoencephalitis is part of differential diagnosis give appropriate antiviral treatment

Lumbar puncture suggests bacterial meningitis?

- In neonates, ≥ 20 cells/microlitre (if < 20 cells/microlitre consider bacterial meningitis if other symptoms and signs)
- In older children and young people, > 5 cells/microlitre or > 1 neutrophil/microlitre

No

Refer to the NICE clinical guideline on feverish illness in children (www.nice.org.uk/guidance/CG47)

Yes (or high clinical suspicion if lumbar puncture fails)

< 3 months

Empiric antibiotics

≥ 3 months

Children 3 months or older Suspected disease

- Treat without delay using intravenous ceftriaxone (do not co-administer with calcium-containing infusions, use cefotaxime instead⁴)
- If recently overseas, or prolonged or multiple antibiotic exposure within 3 months, add vancomycin
- If increased CSF white cell count and risk of tuberculous meningitis, evaluate for diagnosis of tuberculous meningitis⁵
- Consider herpes simplex encephalitis as an alternative diagnosis
- If tuberculous meningitis is part of differential diagnosis give the appropriate antibiotic treatment⁵
- If herpes simplex meningoencephalitis is part of differential diagnosis give appropriate antiviral treatment

Steroids

- Give dexamethasone (0.15 mg/kg to a maximum dose of 10 mg, four times daily for 4 days)⁷ if lumbar puncture shows:
 - frankly purulent CSF
 - CSF WBC count > 1000 /microlitre
 - raised CSF WBC count and protein greater than 1 g/litre
 - bacteria on Gram stain
- If tuberculous meningitis is in the differential diagnosis, refer to 'Tuberculosis'⁵ before administering steroids

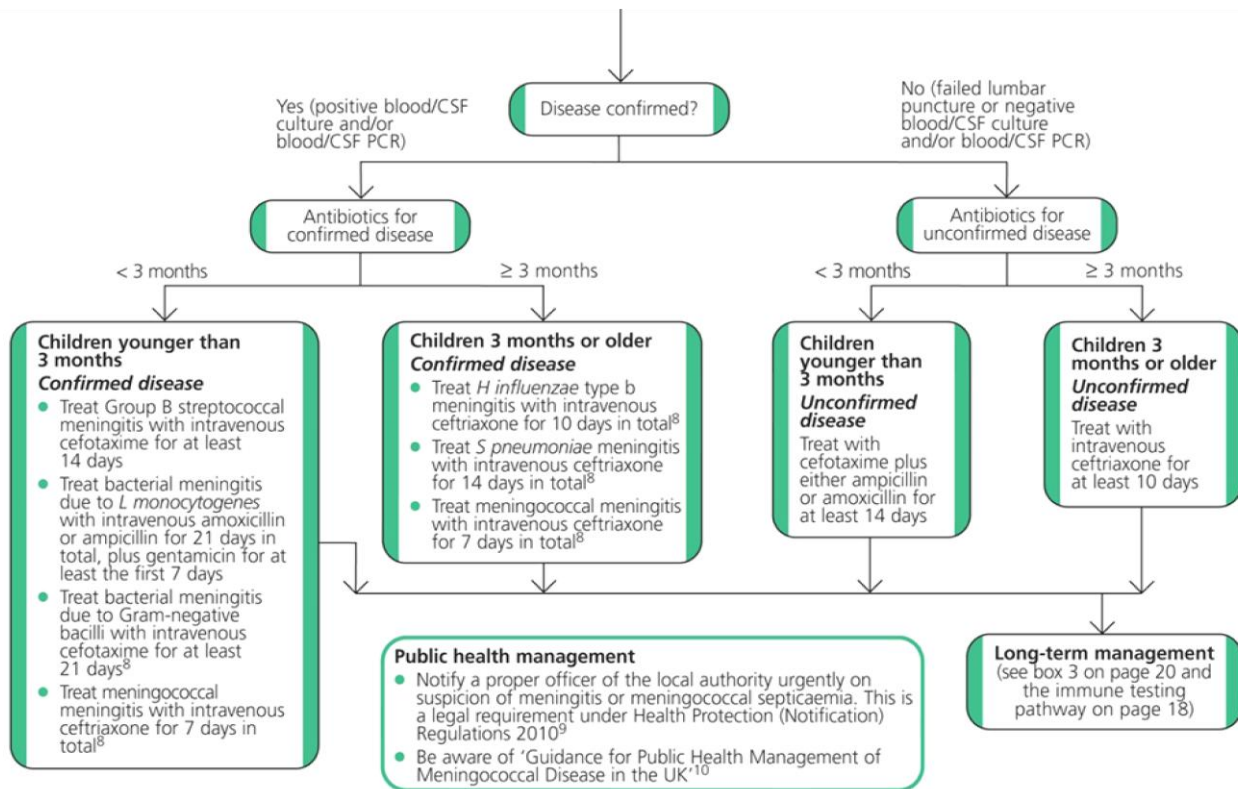
Perform CT scan (see box 2)

Yes

Reduced or fluctuating level of consciousness or focal neurological signs?

No

- Give full-volume maintenance fluids: use enteral feeds if tolerated, or isotonic fluids if intravenous maintenance is needed
- Do not restrict fluids unless there is evidence of increased antidiuretic hormone secretion⁶
- Monitor fluid administration, urine output, electrolytes and blood glucose
- Use local or national protocols to treat seizures



⁴ See Medicines and Healthcare products Regulatory Agency (2009) Drug Safety Update Vol. 3 Issue 3. Available from www.mhra.gov.uk

⁵ See 'Tuberculosis: clinical diagnosis and management of tuberculosis, and measures for its prevention and control'. Available from www.nice.org.uk/guidance/CG33

⁶ See National Patient Safety Agency (2007) Patient safety alert 22: Reducing the risk of hyponatraemia when administering intravenous infusions to children. Available from www.nrls.npsa.nhs.uk

⁷ The dosage given in the recommendation is based on high-quality evidence and is consistent with established clinical practice (see the full guideline for further details). The guideline will assume that prescribers will use a drug's SPC to inform their decisions for individual patients. Dexamethasone does not have UK marketing authorisation for use at the dose specified in the recommendation. Such use is an off-label use. Informed consent should be obtained and documented in line with normal standards in emergency care.

⁸ Unless directed otherwise by the results of antibiotic sensitivities.

⁹ www.opsi.gov.uk. The Department of Health has issued guidance on health protection legislation which explains the notification requirements. See 'Health protection legislation guidance 2010' at www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_114510

¹⁰ Health Protection Agency Meningococcus Forum, 2006; see www.hpa.org.uk