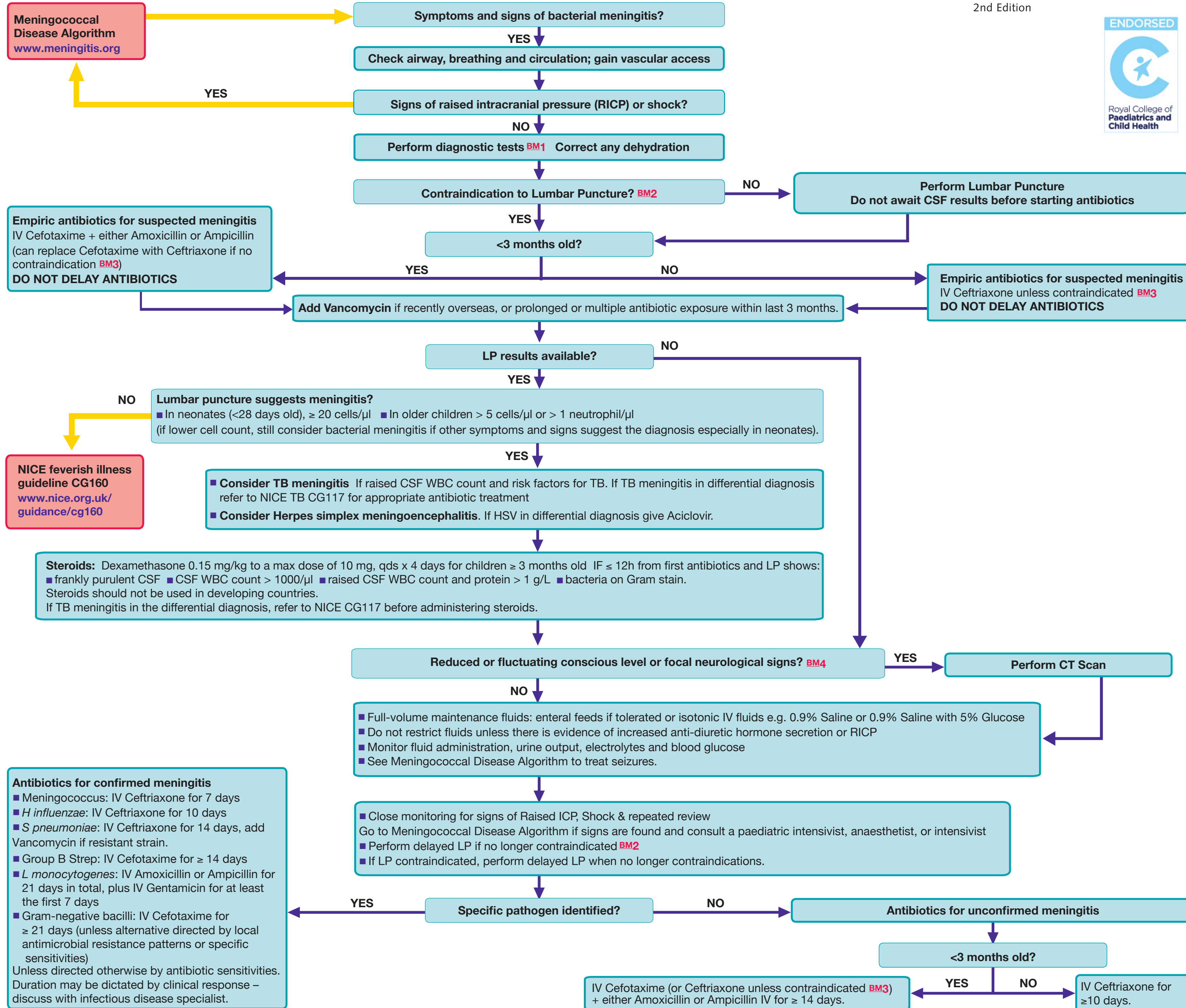


Management of Bacterial Meningitis in Children and Young People

Incorporates NICE Bacterial Meningitis and Meningococcal Septicaemia Guideline CG102. Distributed in partnership with NICE



2nd Edition



Meningococcal Disease Algorithm www.meningitis.org

Empiric antibiotics for suspected meningitis
IV Cefotaxime + either Amoxicillin or Ampicillin (can replace Cefotaxime with Ceftriaxone if no contraindication **BM3**)
DO NOT DELAY ANTIBIOTICS

NICE feverish illness guideline CG160
www.nice.org.uk/guidance/cg160

Antibiotics for confirmed meningitis

- Meningococcus: IV Ceftriaxone for 7 days
- *H influenzae*: IV Ceftriaxone for 10 days
- *S pneumoniae*: IV Ceftriaxone for 14 days, add Vancomycin if resistant strain.
- Group B Strep: IV Cefotaxime for ≥ 14 days
- *L monocytogenes*: IV Amoxicillin or Ampicillin for 21 days in total, plus IV Gentamicin for at least the first 7 days
- Gram-negative bacilli: IV Cefotaxime for ≥ 21 days (unless alternative directed by local antimicrobial resistance patterns or specific sensitivities)

Unless directed otherwise by antibiotic sensitivities. Duration may be dictated by clinical response – discuss with infectious disease specialist.

BM1 Diagnostic and other laboratory tests:
Take bloods for Blood gas (bicarb, base deficit), Lactate, Glucose, FBC, U&E, Ca⁺⁺, Mg⁺⁺, PO₄, Clotting, CRP, Blood cultures, Whole blood (EDTA) for PCR, X-match. Take Throat swab. If limited blood volume, prioritise blood gas, lactate, glucose, electrolytes, FBC, clotting.

BM2 Contraindications to Lumbar Puncture

- Clinical or radiological signs of raised intracranial pressure
- Shock
- After convulsions until stabilised
- Coagulation abnormalities
 - Clotting study results (if obtained) outside the normal range
 - Platelet count below 100 x 10⁹/L
 - on Anticoagulant therapy
- Local superficial infection at LP site
- Respiratory insufficiency.

Perform delayed LP in children with suspected bacterial meningitis when contraindications no longer present

BM3 Contraindications to Ceftriaxone
Premature neonates with corrected gestational age < 41 weeks and other neonates <1 month old, particularly those with jaundice, hypoalbuminaemia, or acidosis; or receiving concomitant treatment with intravenous calcium.

BM4 Indications for CT scan in children with suspected bacterial meningitis
CT scan cannot reliably detect raised intracranial pressure. This should be assessed clinically. Perform a CT scan to detect other intracranial pathologies if GCS ≤8 or focal neurological signs in the absence of an explanation for the clinical features.
Do not delay treatment to undertake a CT scan. Clinically stabilise the child before CT scanning. Consult a paediatric intensivist, anaesthetist, or intensivist.

BM5 Indications for tracheal intubation and mechanical ventilation
Threatened or actual loss of airway patency (e.g. GCS ≤8, response to pain only).

- Need for any form of assisted ventilation e.g. bag-mask ventilation.
- Clinical observation of increased work of breathing
- Hypoventilation or Apnoea
- Features of respiratory failure, including
 - Irregular respiration (e.g. Cheyne-Stokes breathing)
 - Hypoxia (saturation <94% in air, PaO₂ < 13 kPa or 97.5mmHg), hypercapnoea (PaCO₂ > 6 kPa or 45 mmHg)
- Continuing shock following 40ml/kg of resuscitation fluid
- Signs of raised intracranial pressure
- Impaired mental status
 - GCS drop of ≥ 3, or score ≤ 8, or fluctuation in conscious level
 - Moribund state
- Control of intractable seizures
- Need for Stabilisation for brain imaging or for transfer to PICU.

Should be undertaken by a health professional with expertise in paediatric airway management, Consult PICU. (See MD4)

BM6 Repeat LP in neonates after starting treatment if: persistent or re-emergent fever, new clinical findings (especially neurological findings), deteriorating clinical condition, or persistently abnormal inflammatory markers

BM7 Long-term management: Before discharge consider need for after care, discuss potential long-term effects with parents, arrange hearing test. Refer children with severe or profound deafness for cochlear implant assessment ASAP. Use MRF discharge checklist <http://www.meningitis.org/assets/x/56050>. Provide 'Your Guide' and direct to meningitis support organisations www.meningitis.org/recovery or www.meningitisnow.org/recovery. Offer further care on discharge as needed. Paediatrician to review child with results of their hearing test 4-6 weeks after discharge from hospital considering all potential morbidities and offer referral. Inform GP, health visitor or school nurse.

Based on NICE CG102 www.nice.org.uk/guidance/CG102
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