Management of invasive meningococcal disease in children and young people

**Informed Public Health**

Public health departments have a major role in the management of IMD, ensuring that there are adequate disease prevention and surveillance programmes, and in the prevention of secondary spread through contact tracing. Usually the lead is through the consultant in communicable disease and environmental health/consultant in public health medicine in your local NHS Board.

**Sources of further information and support for patients, parents and carers**

Meningitis Research Foundation
133 Gilmore Place
Edinburgh EH3 9PP
Freephone 24-hour helpline: 0800 88003344
www.meningitis.org

The Meningitis Trust
Centrum Offices Ltd
38 Queen Street
Glasgow G1 3DX
Freephone 24-hour helpline: 0800 028 1828
www.meningitis-trust.org

Meningitis Association of Scotland
9 Edwin Street
Glasgow G51 1ND
0141 427 6698 • 0141 554 6680
www.menscot.org

**Early Treatment**

D Parenteral antibiotics (either benzylpenicillin or cefotaxime) should be administered in children as soon as IMD is suspected, and not delayed pending investigations.

Be aware of the potential for, and be able to recognize, rapidly progressive disease.

D Following arrival at hospital, children with suspected IMD should be reviewed and treated promptly by a senior and experienced clinician.

D Management of children with progressive IMD should be discussed with intensive care at an early stage.

B If there are signs of shock, administer a rapid infusion of IV fluids as isotonic crystalloid or colloid solution (up to 60 ml/kg given as three boluses of 20 ml/kg) with reassessment after each bolus.

D Fluid resuscitation in excess of 60 ml/kg and inotropic support are often required.

D Children with fluid resistant shock should receive early inotropic therapy and ventilatory support should be considered.

D Transfer to PICU should be considered for patients who continue to deteriorate despite appropriate supportive therapy (oxygen, fluids and antibiotics).

Access PICU in accordance with local policies, see www.snprs.nhs.uk.

**Treatment**

B Parenteral cefotaxime should be used as initial treatment of previously well children over three months with a diagnosis of IMD.

B In children with meningococcal meningitis or who are beginning empirical antibiotic treatment for bacterial meningitis of unknown aetiology, parenteral dexamethasone therapy (0.15 mg/kg six hourly) should be commenced with, or within 24 hours of, the first antibiotic dose and be continued for four days.

D In children with IMD the duration of antibiotic therapy should be seven days.

C To confirm the diagnosis in all children with suspected IMD, blood should be taken for:

- bacterial culture
- meningococcal PCR.

This Quick Reference Guide provides a summary of the main recommendations in the SIGN guideline on Management of invasive meningococcal disease in children and young people.

Recommendations are graded to indicate the strength of the supporting evidence.

Good practice points are provided where the guideline development group wishes to highlight specific aspects of accepted clinical practice. Details of the evidence supporting these recommendations can be found in the full guideline, available on the SIGN website: www.sign.ac.uk
IMD generally presents in three illness patterns:

- **Meningococcal septicaemia** (~20%) characterised by fever, petechiae, purpura and toxicity. This presentation is associated with a significantly poorer outcome.

- **Clinical meningitis**, with fever, lethargy, vomiting, headache, photophobia, neck stiffness, and positive Kernig’s and Brudzinski’s signs. These are the classic features of established bacterial meningitis of any cause. There may be less specific features such as poor feeding, irritability, a high-pitched cry, and a full fontanelle.

- **A mixed picture** of septicaemia and meningitis.

### INITIAL ASSESSMENT

- **Primary care assessment**
  - Address carer concerns, ask about non-specific symptoms and comparisons with usual behaviour.
  - Full clinical examination.
  - Assess carer’s abilities to deal with uncertainty and participate in management.
    - If the carer’s capacity to share in the management is in doubt, this should increase the risk category and alter the management plan.
  - Consider local circumstances when assessing risk level.

- **DIAGNOSIS OF IMD**
  - Urgent referral to secondary care
  - Administer parenteral antibiotics as soon as IMD suspected

- **Not supported by assessment**
  - Unlikely but may still develop
  - Likely

- **“Safety netting”** = advise on symptoms or signs of deterioration and how to get help in an emergency

- **“Safety netting” plus arrange interval assessment**

### INTERVAL ASSESSMENT

- **Children with symptoms or signs which are highly suggestive of meningococcal disease should not have their treatment delayed by interval assessment.**

### SIGN AND SYMPTOMS

- **Meningococcal septicaemia** (~20%) characterised by fever, petechiae, purpura and toxicity. This presentation is associated with a significantly poorer outcome.

- **Clinical meningitis**, with fever, lethargy, vomiting, headache, photophobia, neck stiffness, and positive Kernig’s and Brudzinski’s signs. These are the classic features of established bacterial meningitis of any cause. There may be less specific features such as poor feeding, irritability, a high-pitched cry, and a full fontanelle.

- **A mixed picture** of septicaemia and meningitis.

- **Safety netting** = advise on symptoms or signs of deterioration and how to get help in an emergency

- **Administer parenteral antibiotics as soon as IMD suspected**

- **Urgent referral to secondary care**

- If there is sufficient clinical suspicion, appropriate treatment should be commenced and assessment in secondary care should be arranged.

- Children with symptoms or signs which are highly suggestive of meningococcal disease should not have their treatment delayed by interval assessment.

- Children with non-specific symptoms at initial presentation, in whom meningococcal disease cannot be excluded, should be reassessed within four to six hours.