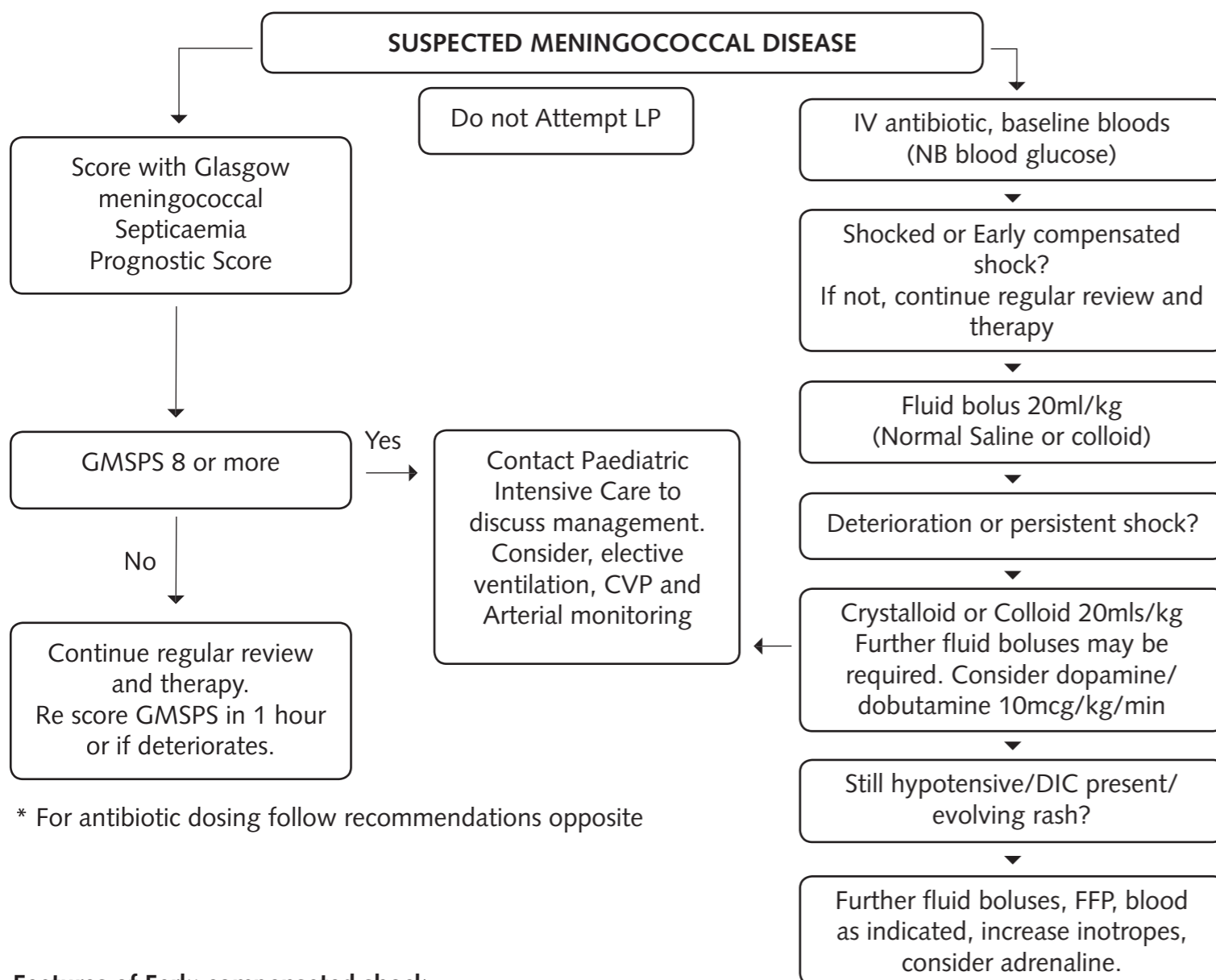


Guidelines for the Management of Meningococcal Disease in Children



Developed through the Paediatric Critical Care Commissioning Advisory Group



* For antibiotic dosing follow recommendations opposite

Features of Early compensated shock

- Tachycardia
- Cool peripheries/pallor
- Tachypnoea/pulse oximetry <95%
- Confusion / drowsiness / decreased LOC
- Hypoxia
- Base deficit (> -5mmol/l)
- Urine output (<1ml/kg/hr)
- Hypotension (late sign)

Glasgow Meningococcal Septicaemia Prognostic Score

1 Systolic Blood Pressure	If < 75 mmHg <4 years, or <85 mmHg >4 years	3 points
2 Skin / Rectal Temperature	If >3°C	3 points
3 Modified Coma Scale	If initial score <8, or deterioration of 3 or more points at any time	3 points
4 Deterioration in last hour	Ask parents or nurses; if yes	2 points
5 Neck Stiffness	If absent	2 points
6 Extent of Purpura	Widespread ecchymoses or extending lesion on review	1 point
7 Base Deficit	If >8	1 point

DIRECT LINE TO PICU: University Hospital of Wales 029 2074 5413 / Royal Liverpool Children's 0151 2525241

Initial Assessment

- An LP is generally not indicated.
- Airway Breathing & Circulation (follow EPLS or APLS guidelines).
- Tachycardia develops early in shock. Hypotension is a late sign.
- Not all children will have a rash, but a spreading rash is ominous.
- Whenever Meningococcal Disease is suspected, immediately give either Cefotaxime (50 mg/kg/6 hourly) or Ceftriaxone (80 mg/kg/once daily)

Continuing Management

1 Assess Airway and Breathing

- Obtain Glasgow Meningococcal Septicaemia Prognostic Score (GMSPS) - see over.

2 Venous Access

- Place two large bore IV cannulae if possible. Intraosseous line if difficult venous access.
- At the time of IV cannulation, draw emergency blood samples.

- If possible send elective and diagnostic blood samples as well (see below).

- Volume resuscitation.
- Initially 20 ml/kg Normal Saline. Then 20 ml/kg boluses of crystalloid or colloid guided by BP, HR and peripheral perfusion.

- Give intravenous antibiotics.

3. If >40ml/kg of Fluid in One Hour, or GMSPS Remains ≥8

- Discuss with regional PICU and consider retrieval.
- Consider intubation & ventilation.
- Consider Inotropic support.

- Start with Dopamine or Dobutamine (5 - 20 mcg/kg/min). With rapid titration effect (3x wt. in kg)mg in 50ml (5% dextrose) 10ml/hr =10mcg/kg/min via a peripheral line.

- Start Adrenaline (0.1 - 2 micrograms/kg/min) if requires escalation in inotrope dose, continuing large volume resuscitation and remains haemodynamically unstable.

- Consider placing a multiple-lumen central venous catheter.
- Give volume according to indicators of hypovolaemia – heart rate, BP, base deficit, CRT, core peripheral temp gap.
- Insert arterial line.
- Correct electrolyte derangement as necessary.
- Correct hypoglycaemia.
- Correct hypocalcaemia to support blood pressure (0.2 ml/kg of 10% Ca gluconate, max 20 ml). May need infusion 0.1 – 0.4 ml/kg/hr.
- Give fresh frozen plasma (10-20 ml/kg) for coagulopathy, Cryoprecipitate (5 ml/kg) if Fibrinogen <1 g/L.
- Give packed cells to maintain haemoglobin >10 g/dL.
- Give sedation and muscle relaxation as appropriate, if ventilated.
- Monitor Urine output consider catheterisation.

4. NB Review patients progress regularly.

- Early referral to PICU if the patient deteriorates

Laboratory Tests

Urgent - Arterial blood gas, glucose, FBC, urea and electrolytes, creatinine, CRP, PT, APTT, Fibrinogen, X-match, Lactate, Mg++, PO4-.

Elective - Diagnostic - Blood culture, nasopharyngeal swab for culture and 3-5 mls of blood in EDTA tube for PCR.

Prophylaxis

- Notify National Public Health Service (NPHS) (via Ambulance Control if out-of-hours)
- Prescribe chemoprophylaxis to case and household members in liaison with NPHS
- NPHS will arrange chemoprophylaxis for wider contacts and consider need for vaccination

References: Advanced Life Support Group Advanced Paediatric life support, 3rd edn 2000
 RPCH Medicines for Children 2003
 Acknowledgement: North West and North Wales Critical care Interface Group

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