

CRUMPET Scenario 2 : Meningococcal Septicaemia

Learning Objectives :

Technical Skills

- Recognition and Management of Meningococcal Septicaemia in a child
- Knowledge of Fluid resuscitation, drug doses and routes of administration
- Decision making process for Intubation / Ventilation
- Cardiopulmonary Resuscitation in a child

Non Technical Skills (EmNTS)

- Effective Leadership, team working and communication
- Effective escalation to Consultants
- Appropriate communication with parents

EM Curriculum Mapping :

- PMP5 The shocked child
- PAP9 Fever in all age groups

Faculty Roles / Responsibilities :

[Minimum Faculty = 4]

Simulation Room :

Parent Information in script

Student nurse (with microphone)

- Expert in equipment,
- Limited clinical experience.
- Able to undertake observations if asked.
- Only proactive if needs to be.
- Guided by control room.

Control Room:

Phone faculty

Switchboard : helpful and cheerful. Will contact whoever via bleep / mobile phone

Laboratory : Lab technician will answer phone and take request for urgent bloods. Needs patients name and DOB. Results will be phoned back

Consultants (ED / Anaesthesia / Paediatrics) – at home on call. Will give advice as needed and will come in to hospital immediately if asked with a timeframe 15-20 minutes

Senior Nurse - present in the department - available for advice over the phone if needed

Candidates :

1 ED ST 1/2	1 ED Nurse
1 ED SpR	
1 Anaesthesia ST 1/2	1 Operating Department Practitioner (ODP)
1 Anaesthesia ST3-5	
1 Paediatric ST1/2	1 Paediatric Nurse (optional)
1 Paediatric ST 3-7	

Mannikin Preparation :

Baby Simulator (eg) SIM Baby in a cot / ED trolley
Clothed
No iv access

Sim Room set up :

ED Paediatric Resus bay. Full monitoring available.
All drugs / fluids available (see props list for course)
Observation chart
ED drug chart
Algorithm for management of Meningococcal Sepsis [<http://www.meningitis.org/assets/x/50150>]

Scenario start :**Candidates in simulation room :**

All candidates awaiting arrival of patient

On arrival (technical programming)

- A : maintained spontaneously. Would tolerate a guedel airway
 - B : RR 40. Air entry equal, chest clear. SaO2 90% on Oxygen
 - C : Pulse 140, CRT >5 sec, BP 70/32
 - D : A V P U
 - E : Purpuric rash on both legs
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Expected Responses during the scenario :

Calculations (Weight = 12kg)
IV access. BM (5.4)
FBC, UE, glucose, CRP, Ca, Mg, blood cultures, PCR + Serology
Maintenance or fluid bolus 20ml/kg (=240ml)
Ceftriaxone 80mg/kg (=960mg)
Obtain complete history from parents

Progression of Scenario and treatments required :

Rapid ABCDE assessment, recognition of meningococcal sepsis and begin active management with fluid resuscitation and antibiotics

- ▶ Fluid bolus 20ml/kg
- ▶ Ceftriaxone iv
- ▶ Difficult iv access - so will need to consider and do IO access

Desaturation despite active airway control measures

- ▶ SpO₂ drop 85% on high flow oxygen over 5 mins
- ▶ Irregular respirations
- ▶ Decision to intubate & ventilate needs to be made

Continuing hypovolaemia and progression to cardiac arrest if no further fluid boluses given.

- ▶ CRT 6 secs
- ▶ weak peripheral pulses
- ▶ cold peripheries
- ▶ Progression to PEA if inadequate treatment
- ▶ Consider inotropic support

PEA cardiac arrest

- ▶ Paediatric CPR algorithm to be followed (APLS version)
- ▶ Output returns after fluid boluses and adrenaline after 3 cycles of CPR

Expected Additional Measures :

Call relevant Consultants at earliest opportunity

ABG

Consider inotropic support and intubation after 60ml/kg fluid bolus

Discuss case with PICU / Paediatric Retrieval Team

Appropriate explanation to parents

Outcome

Laura will get collected by the Paediatric Transport team and taken to PICU for further management

Briefing

Scenario start :

Candidates in simulation room :

All candidates

Initial briefing notes to whole team (to be read out)

Laura Connors is a 18 months old. She was taken home from nursery this morning

She had become very hot and lethargic. She is coming in via ambulance - her GCS has deteriorated and her respiratory rate is 40 - she is currently saturating at 90% in high flow oxygen and the paramedics are unable to get iv access.

Briefing Sheet

Parent (Mum/Dad) / Grand parent

Laura Connors is a 18 months old. She has been hot and lethargic this morning. She was given some Calpol which seemed to work. At lunchtime, nursery rang and asked for Laura to be taken home as she was not looking very well.

She had become very hot. At home, she became increasingly sleepy and was not responding to Calpol any more. Mum brought her to A&E. She seemed to get a lot more distressed in the ambulance.

Blood Results :**U&E**

Laura Connors	
Na	135
K	4.7
Urea	3.6
Creatinine	76

Venous BG

Laura Connors	
pH	7.18
PO2	5.4
PCO2	5.8
BE	-10.3

FBC

Laura Connors	
Hb	13.8
WCC	18.4
PLT	230

Other Tests :

CRP 350

Mg²⁺ 0.82

Glucose 8.7

Calcium 2.1

CXR : Not done in the scenario