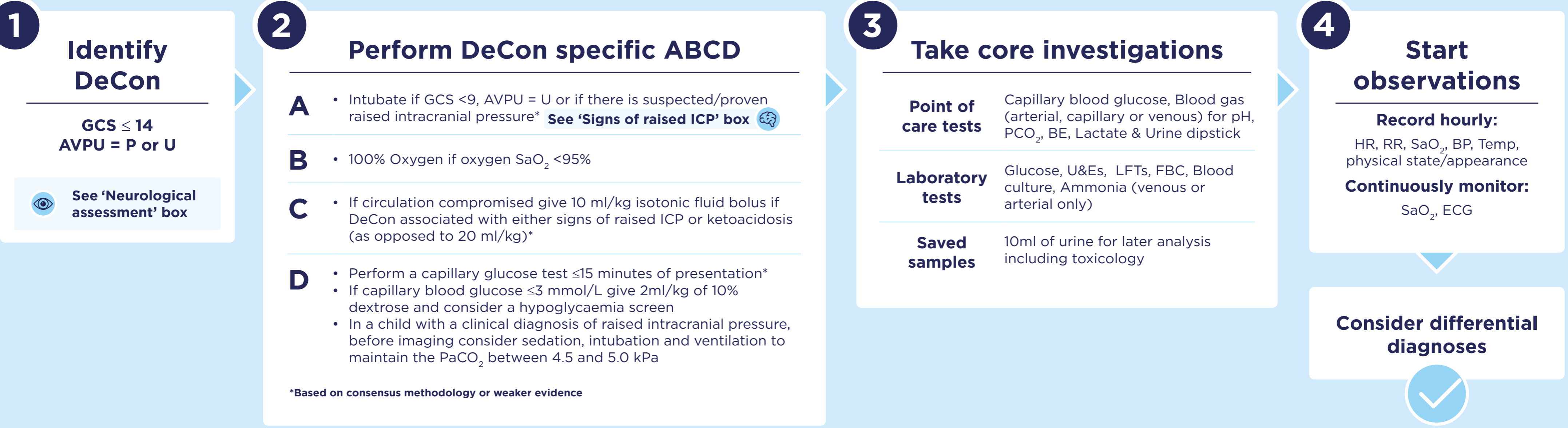


THE MANAGEMENT OF CHILDREN AND YOUNG PEOPLE WITH AN ACUTE DECREASE IN CONSCIOUS LEVEL

Population: Children aged from 4 weeks up to 18 years who have a decreased conscious level*



IDENTIFY DECON



DIFFERENTIAL DIAGNOSIS

Hypertensive encephalopathy

Investigation • Look for signs of raised ICP + papilloedema
• Do 4 limb BP
• Urinalysis for blood/protein + U&Es

PICU and NEPHROLOGY • Discuss when DeCon + Hypertension (BP >95th centile for age)

Metabolic

Hypoglycaemia • Hypoglycaemia screen if lab Glucose <3mmol/L
• 2ml/kg bolus 10% Dextrose
• Then infusion of 10% Dextrose (Target 4-7mmol/L)

Hyperammonaemia • If plasma level >100micromol/l
• Send a free flowing venous (or arterial) sample of ammonia to the laboratory, which should be informed it is coming. Samples should be transported on ice in case of a delay before analysis which might affect the interpretation
• **SEEK EXPERT METABOLIC ADVICE**

DKA www.bsped.org.uk/clinical/docs/DKAGuideline.pdf

Prolonged fits/Post convulsive

Investigation Mg²⁺ and Ca²⁺ and Na⁺

PICU **Discuss treatment if:**
• Na <125 mmol/L
• Ionised Ca²⁺ <0.75 mmol/L
• Mg²⁺ <0.65 mmol/L
and the convulsion is ongoing despite anticonvulsant treatment

Cause unclear

Consider additional tests and involvement of specialists e.g. Neurologist or Metabolic expert

Investigation **Additional tests:**
• CT/MRI
• LP **See 'LP WARNING' box**
• Urine Toxicology
• Urine organic and plasma aminoacids
• Plasma lactate/EEG

Sepsis

Diagnosis T^o >38°C or <35.5°C or ↑HR or ↑RR
WCC >12×10⁹/L or <4×10⁹/L or a purpuric rash

Investigation • CXR
• Urine culture
• Blood PCR (meningococcus+pneumococcus)
• Clotting
• Skin swab (from areas of inflammation)
• Joint aspiration (if septic arthritis)
• Thick and thin film (for malarial parasites if foreign travel to endemic area)

Treatment Broad spectrum antibiotics ≤1 Hour + Follow 'Sepsis 6 pathway': <http://www.survivingsepsis.org/Bundles/Pages/default.aspx> + EARLY SENIOR REVIEW

Intracranial infection

Differential • Bacterial meningitis
• Herpes Simplex Encephalitis (HSE)
• Intracranial abscess
• TB meningitis

Investigation • LP including CSF HSV PCR if no contraindications
See 'LP WARNING' box

Treatment • **Bacterial:** www.nice.org.uk/guidance/cg102
• **HSE:** Aciclovir (Duration decided by local ID experts)
• **TB:** www.nice.org.uk/guidance/cg117/resources/guidance-tuberculosis-pdf

Raised ICP

Diagnosis **See 'Signs of raised ICP'**

Treatment • Refer to the NICE Bacterial meningitis and meningococcal septicaemia Guideline for recognition and Rx www.nice.org.uk/guidance/cg102

PICU • Discuss acute management with local PICU
• Position head in midline
• 20° head up tilt
• Avoid internal jugular CVCs
• Isotonic fluids (restricted)
• Mannitol or Hypertonic saline
• Intubate and ventilate to a PaCO₂ of 4.5-5.0 kPa **BEFORE IMAGING**

Alcohol intoxication

Investigation Consider blood alcohol test when suspected as a cause of DeCon

Treatment • ABCD/APLS
• Treat hypoglycaemia with IV glucose + maintenance Dex/Saline
• Beware of and if present treat respiratory failure/aspiration pneumonia and hypotension
• Other concurrent ingestions
• And avoid emetics (in case of aspiration)

Considerations • Consider all other likely contributory drugs
• Consider contacting local poisons unit

Shock

Diagnosis Mottled, cool extremities or diminished peripheral pulses + systolic BP <5th centile for age or urine output <1ml/kg/hr

Differential Sepsis, trauma, anaphylaxis, heart failure

Treatment 20 ml/kg isotonic fluid bolus (10 ml/kg if raised ICP or ketoacidosis)

Reassessment ↓ HR **See 'Observation'**
↓ Capillary refill time
↑ Level of consciousness **See 'Neurological assessment'**
↑ Blood pressure (to normal level for age)
↑ Lactate concentration and/or improvement in base excess
↑ In urine output

PICU Consider for intubation/ventilation/inotropes if >40ml/kg fluid given



Neurological assessment

GLASGOW COMA SCORE (GCS)

Eyes	Motor	Voice
4 Open	6 Obeys commands	5 Converses
3 To command	5 Localises pain	4 Confused
2 To pain	4 Flexion withdrawal	3 Inappropriate words
1 No response	3 Abnormal flexion	2 Incomprehensible
	2 Abnormal extension	1 No response
	1 No response	

GCS MODIFICATIONS IN CHILDREN UNDER 5 YEARS

Motor	Voice
6 Normal spontaneous movements	5 Alert, babbles, coos, words or sentences to usual ability
5 Localises to supraorbital pain (SOP) or withdraws from touch	4 Less than usual ability, irritable cry
4 Withdraws from nailed pain	3 Cries to pain
	2 Moans to pain

AVPU SCALE

A = Alert V = Responds to voice P = Responds to pain U = Unresponsive



Observation - normal ranges

Age	Respiratory Rate	Heart Rate	Systolic BP
Neonate	60	160	70
<1 year	35-45	110-160	75
1-5 years	25-35	95-140	80-90
5-12 years	20-25	80-120	90-110
>12 years	adult	adult	100-120



Signs of raised ICP

BRADYCARDIA (heart rate ≤60 bpm)	or	HYPERTENSION (MAP ≥95 th centile for age)
Pupillary dilation (unilateral or bilateral) or loss/impairment of reaction to light		
Abnormal breathing pattern or posture		



LP WARNING

Do not attempt an LP if...

- There are signs of raised ICP (Even if GCS is 15)

See 'Signs of raised ICP'

- GCS ≤8 or deteriorating or focal neurological signs or GCS ≤12 after a seizure lasting ≥10 minutes
- CT /MRI suggesting CSF pathway obstruction
- Clinical evidence of circulatory shock/meningococcal disease

*This does not include: Children with a previously diagnosed condition which may decompensate causing a decreased conscious level (e.g. epilepsy, ventriculo-peritoneal shunt, previously diagnosed metabolic condition), who already have an agreed management plan for acute illness; OR Children who on a day to day basis score 14 or less on the Glasgow Coma Scale or Modified Glasgow Coma Scale (e.g. children with epileptic encephalopathy, minimally responsive state following acquired brain injury).