PAEDIATRIC ACUTE CARE GUIDELINE	
Resuscitation – Coma	
Scope (Staff):	All Emergency Department Clinicians
Scope (Area):	Emergency Department

This document should be read in conjunction with this DISCLAIMER
http://kidshealthwa.com/about/disclaimer/

Resuscitation – Coma

Background

- The unconscious and unresponsive child is a very serious and potentially life threatening situation.
- The key to treatment is quick stabilisation and treatment of life threats, then careful but quick evaluation of the cause and treatment of reversible causes.
- **Any child with a VP shunt with decreased conscious state should be assumed to have a shunt blockage and raised intracranial pressure until proven otherwise.**
- Senior emergency doctor or specialist (e.g. ICU or anaesthetics) help is usually warranted and should be considered early.

Common Causes of Unconsciousness

- Trauma
- Sepsis
- Seizures/post ictal
- Ingestion
- Endocrine and Electrolyte abnormalities

Assessment

Assessment of conscious level

- Two scales which are readily assessable and recordable are the:

- **AVPU**
  - A - Alert/Awake
  - V - Repsonds to voice
  - P - Responds to painful stimuli
  - U - Unresponsive/Unconscious
- **Glasgow Coma Scale** GCS (modified for children)

Modified Glascow Coma Scale

		< 1 year	1-4 years	> 5 years
Eyes Open	**4**	Spontaneous		
	3	To speech and touch		
	2	To pain		
	1	No response		
Best Verbal Response	**5**	Normal vocal sounds, cries, periods of quiet wakefulness	Alert - word or phrases of usual ability	Orientated, appropriate words and phrases to usual ability
	4	Spontaneous irritable cries	Less than usual words, spontaneous irritable cry	Confused/disorientated
	3	Cries to pain only	Cries or vocal sounds to pain only	Inappropriate words
	2	Moan, grimace/facial movement to central pain	Occasional whimper or moan to pain	Incomprehensible sounds
	1	No response	No response	No response
Best Motor Response	**6**	Moves spontaneously and purposefully	Obeys commands/usual movements	Obeys commands/usual movements
	5	Localises to stimuli	Localises to painful stimulus	Localises to painful stimulus
	4	Withdraws in response to pain	Withdraws in response to pain	Withdraws in response to pain
	3	Responds to pain with abnormal extension	Abnormal flexion	Abnormal flexion
	2	Responds to pain with abnormal extension	Abnormal extension	Abnormal extension
	1	No response	No response	No response

History

Key points to obtain:
• Past history , particularly the presence of Ventriculo-peritoneal (VP) shunt
• Recent injuries, especially head injuries
• Progress of unconsciousness – sudden or slowly progressive deterioration
• Fever
• Headaches (and onset of headaches – abrupt or progressive)
• Neck stiffness
• Vomiting
• Medications that might have been accessible

Investigations

Investigations and blood tests are likely to be needed unless diagnosis is absolutely clear
Consider:
• Glucose (Don't Ever Forget Glucose)
• Blood Gas (arterial or venous)
• FBC
• UEC
• Calcium
• Blood cultures (if febrile or sepsis is considered a possibility)
• CT head - likely to be needed, but make decision in consultation with senior clinician
• EEG - rarely needed as an acute investigation, but consider in non-convulsive status (in consultation with neurology)
• Blood alcohol level and drug screen

Management

Any patient who scores a P in the AVPU or < 9 on the Glascow Coma Scale requires airway support.

Resuscitation

- Airway + C-Spine Immobilisation
  - Assess adequacy and ensure there is no obstruction
  - Have a low threshold for early intubation
- Breathing
  - Support with oxygen and assisted ventilation if needed
  - Beware of hypoventilation and rising CO2 - causes raised intracranial pressure
- Circulation
  - Assess for signs of shock (slow capillary refill, hypotension) and treat appropriately
- Disability
  - Rapid neurological assessment
  - If seizures occurring or non-convulsive status thought likely refer to Status Epilepticus
- Glucose
  - Early evaluation of BGL
    - If low give 2mL/kg of 10% glucose
    - If BGL > 11 mmol/L refer to Diabetic Ketoacidosis
  - Collect growth hormone/cortisol/insulin levels if glucose is low
- Seek the cause of the coma

Potential Causes

Trauma
• Accidental or non accidental

Hypoxic-ischaemic injury • Cardiorespiratory arrest, shock syndromes, near-drowning, smoke inhalation
Intracranial Infection • Meningitis, Encephalitis, Post-infectious
Mass Lesion • Haematoma, Abscess, Tumour
Fluid, Electolytes, Acid-base • Hypernatraemia, Hyponatramia, Acidosis/Alkalosis
Epilepsy Disorders
Systemic Infection • Sepsis syndrome, Septic encephalopathy
Complications of Malignancy
Poisoning
Acute Ventricular Obstruction
Vascular • Arteriovenous malformations, Embolism, Venous thrombosis, Arteritis Homocysteineuria
Hypertensive Encephalopathy
Endocrine Dysfunction • Hypoglycaemia • Diabetes mellitus • Diabetes insipidus
Respiratory Failure
Renal Failure
Hepatic Encephalopathy
Reye's Syndrome
Inherited Metabolic Disorders • Lactic acidosis • Urea cycle disorder • Aminoacidopathies
Hypothermia, Hyperthermia
Iatrogenic • Overcorrection of acidosis • Overhydration • Drug overdose

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