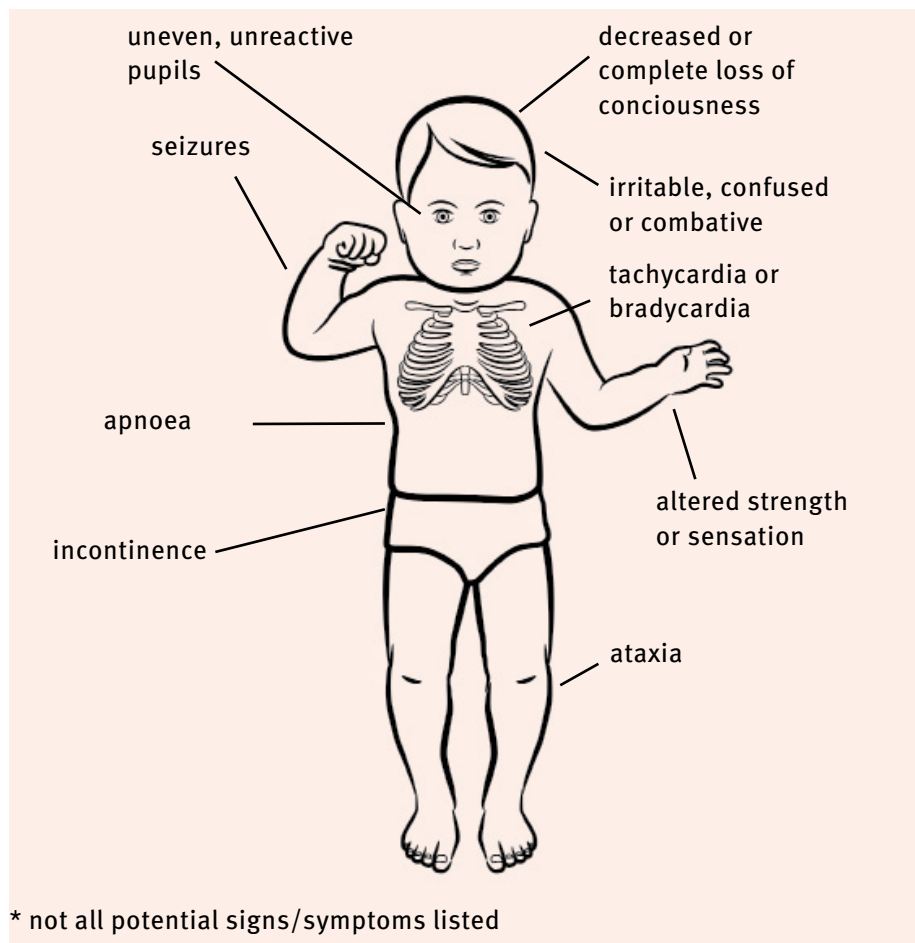


Neurological Assessment: Tips in infants and young children

There are many reasons why infants and children presenting to the emergency department may require a neurological nursing assessment. Some of these reasons may include a fall from height, knock to the head and suspected meningitis or encephalitis. The paediatric neurological assessment differs depending on the child's age, neurodevelopment and language level.



ALERT

Deterioration in neurological status should be reported immediately to the medical officer and shift co-ordinator. Changes can be subtle in children and even small changes should be taken seriously.



AVPU (Alert/Voice/Pain/Unresponsive) Scale:

The AVPU scale is used to rapidly check a child's neurological status. The scale is described below:

- Alert – the infant or child is awake
- Voice – the infant or child responds to a verbal stimulus
- Pain – the infant or child responds to painful stimulus
- Unresponsive – the infant or child is unresponsive to stimulus

Glasgow Coma Scale:

The Glasgow Coma Scale (GCS) is a standard tool used to assess neurological status. Queensland Health utilises a child friendly modified GCS to reflect developmental milestones. For a full guide on how to conduct a paediatric GCS please refer to pages 10-13 of the [CHQ Nursing Standard: Clinical Observations - Considerations in Children](#).

Tips for obtaining a paediatric GCS:

Involve caregivers:

Be sure to involve caregivers in your assessment as they will be able to provide you with valuable information regarding their child's normal behaviour and language abilities. Explain to caregivers what the process is so they understand to not answer on behalf of the child. Younger children may also feel more confident and comfortable answering questions from caregivers instead of nursing staff - if this is the case please provide caregivers with the questions and clear instructions.

Tips on acquiring a best verbal response:

Infants 0-23 months: interact with the infant or encourage caregivers interaction to elicit a verbal response in the form of a smile and coo

Toddlers 2-5 years: ask questions about things that are relevant to them such as: teddies/dolls, siblings or caregivers, pets – eg. "Can you tell me about your teddy?"

Child > 5 years: ask questions about things that are relevant to them such as: kindy/school, friends, favourite activities – eg. "What is your favourite thing about school?" Look at what they are wearing/holding/watching and ask them questions about it.

Tips on acquiring a best motor response:

Infants 0-23 months: observe the infant to ensure they move spontaneously and purposely, ask their caregivers if they notice any changes from their infants normal activity. Give them a toy/bottle/teddy/dummy and see if they use it appropriately.

Toddlers 2-5 years: ask the toddler to preform simple commands - eg. "Can you show me your thumbs?" "Can you give mum/dad a high five?" or "Can you use your finger to touch your nose?"

Child > 5 years: ask the child to hold up a certain number of fingers on hands – eg. "Can you show me two fingers?"



ALERT

Painful stimuli: The least noxious stimuli must be used first. It is inappropriate to inflict painful stimuli on patients who are unable to elicit a motor response due to chemical paralysis.



Tips for obtaining a paediatric GCS continued:

Tips on checking pupils (size, shape and reaction to light):

Shining a light in a child's eyes can sometimes be challenging if they are upset, turn their head away to hide or close their eyes. Here are a few ideas you can try:

- If the child is upset or crying, give their care giver time to settle them.
- Show the child it can be fun and that it's not scary by checking their care givers pupils or their teddy/doll's pupils. Let them play with the torch and check your eyes if the child is old enough to do so.
- Ask a helper to try some distraction techniques such as bubbles or toys.
- Sit at the same level with the child. Take your neuro torch and shine it on yourself, moving back and forth across the lower part of your face, pointing the child to where the light is. This will gain the young child's attention and give you a chance to first examine the size and shape of their pupils. Then turn the light from your face to the child's mid-forehead area and check their pupillary reaction.

Document the pupil size prior to shining a light into them, then document the pupillary reaction time (brisk, sluggish or unreactive).



ALERT

The sudden appearance of a fixed dilated pupil is a neurological emergency. The size of the pupil is controlled by the third cranial nerve (oculomotor nerve). If compressed from localised intracranial swelling, it will result in relaxation of the muscle and dilation of the pupil. If a pupil that has previously been reactive to light is assessed as becoming sluggish and increasing in size, this may be evidence that ICP is rising and immediate medical review and intervention should be initiated.

Under 18 months of age - Check the fontanelles

The posterior fontanelle usually closes by the second month of life and the anterior fontanelle fuses between 12-18 months.

How to assess:

- When assessing the fontanelles ensure the baby is settled and is either held or positioned sitting upright. These fontanelles should feel flat, firm and well distinguished against the bony edges of the skull.



ALERT

The following signs are abnormal and should be promptly reported to a medical officer:

- Bulging fontanelle (can indicate increased intracranial pressure) or a sunken fontanelle (can indicate dehydration).
- Frequent visible pulsations (can indicate increased intracranial pressure).



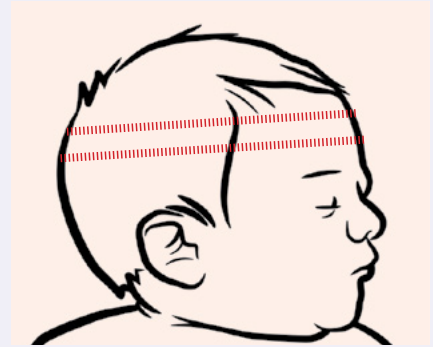
Need to measure a head circumference?

Equipment Required:

- Soft non-stretch tape measure

Where to measure:

- The tape should be gently placed around the the head, positioned above the eyebrows, ears and cover the most prominent area of the back of the head (occipital bones).



When to escalate care



Urgently seek medical advice in child with a Glasgow Coma Scale of 8 or less.



Seek prompt senior nursing/medical advice in a child with any change in level of consciousness.

For further information:

[CHQ Nursing Standard: Clinical Assessment of the Paediatric Patient – Rapid Assessment / Primary and Secondary Survey / Vital Signs \(QH only\)](#)

[Nursing Standard: Clinical Observations - Considerations in Children. \(QH only\)](#)

References:

This Queensland Paediatric Emergency Nursing Skill Sheet was developed by the Emergency Care of Children working group (funded by the Queensland Emergency Department Strategic Advisory Panel) with the help of the following resources:

Children's Health Queensland Hospital and Health Service. (2017, June 21). Clinical Assessment of the Paediatric Patient – Rapid Assessment / Primary and Secondary Survey / Vital Signs. Queensland Health Intranet. https://qheps.health.qld.gov.au/_data/assets/pdf_file/0019/724240/ns_00241.pdf

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Queensland Health State wide ED Nurse Educator Committee. (2016). Unit 7 Neurology. In N. Pearson, T. Cole, & S. Carney (Eds.), Transition Support Program - Emergency. Module 3 - Paediatric Care in the Emergency Department (pp. 112–123). State of Queensland (Queensland Health).



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- Providing care within the context of locally available resources, expertise, and scope of practice.
- Supporting consumer rights and informed decision making in partnership with healthcare practitioners including the right to decline intervention or ongoing management.
- Advising consumers of their choices in an environment that is culturally appropriate and which enables comfortable and confidential discussion. This includes the use of interpreter services where necessary.
- Ensuring informed consent is obtained prior to delivering care.
- Meeting all legislative requirements and professional standards.
- Applying standard precautions, and additional precautions as necessary, when delivering care.
- Documenting all care in accordance with mandatory and local requirements.

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