

# Paediatric Pearls

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Previous editions are now all available at [www.paediatricpearls.co.uk](http://www.paediatricpearls.co.uk)

**This month's featured NICE guideline: Head Injury.**  
**Triage, assessment, investigation and early management of head injury in infants, children and adults** ([www.nice.org.uk/CG56](http://www.nice.org.uk/CG56) Sept 2007)

20 page quick reference guide available at  
<http://www.nice.org.uk/nicemedia/live/11836/36257/36257.pdf>

This guideline covers pre-hospital management, assessment in the emergency department, investigations, when to admit, when to refer to neurosurgeons and a bit on transferring patients. It also talks, non-prescriptively, about "observation".

Any child who has a **GCS < 15**, **neck tenderness**, **a focal neurological deficit**, **paraesthesia in their extremities** or **any other suspicion of a cervical spine injury** should be immobilised on a spinal board. Children under 10 should normally have cervical spinal x-rays but will need a CT of their neck if the GCS < 8, the plain films are inadequate or there is a strong clinical suspicion of injury despite normal x-rays.

The following are indications for a head CT in a child under 16:

- Witnessed loss of consciousness lasting > 5 minutes
- Amnesia (antegrade or retrograde) lasting > 5 minutes
- Abnormal drowsiness
- 3 or more discrete episodes of vomiting
- Clinical suspicion of non-accidental injury
- Post-traumatic seizure but no history of epilepsy
- Age > 1 year: GCS < 14 on assessment in the emergency department
- Age < 1 year: GCS (paediatric) < 15 on assessment in the emergency department
- Suspicion of open or depressed skull injury or tense fontanelle
- Any sign of basal skull fracture (haemotympanum, 'panda' eyes, cerebrospinal fluid leakage from ears or nose, Battle's sign)
- Focal neurological deficit
- Age < 1 year: presence of bruise, swelling or laceration > 5 cm on the head
- Dangerous mechanism of injury (high-speed road traffic accident either as pedestrian, cyclist or vehicle occupant, fall from > 3 m, high-speed injury)

If the CT is normal, GCS = 15 and there are no other criteria for admission (see below), the "clinician may conclude that the risk of clinically important brain injury requiring hospital care is low enough to warrant discharge."

The following are admission criteria:

- patients with new, clinically significant abnormalities on imaging
- those whose GCS has not returned to 15 regardless of imaging results
- those who fulfil the CT scanning criteria but can not have it done because of technical problems or need for sedation
- any continuing worrying signs eg. persistent vomiting or and other concerns from the clinician eg. NAI

Observation guidelines in those who are admitted:

- half hourly obs until GCS = 15
- then half hourly obs for 2 hours
- then hourly for 4 hours
- 2 hourly thereafter

There are no concrete guidelines for the length of time a child should be observed if they do not satisfy the criteria for CT scanning. The responsible clinician will take many things into account when assessing how long to keep a child in the department including mechanism of injury, age of child, time of day, safeguarding issues and perceived ability of the parent/carer to continue observing at home.

On discharge families should be given verbal and written information. The NICE patient info leaflet is at <http://www.nice.org.uk/nicemedia/live/11836/36262/36262.pdf> but it is not child specific and is too long. We have in-house leaflets or you could try [http://www.sign.ac.uk/pdf/sign110\\_annex10.pdf](http://www.sign.ac.uk/pdf/sign110_annex10.pdf) which is aimed at parents.

More on head injury at <http://www.paediatricpearls.co.uk/2011/01/head-injury/>

## Blue inhaler v. Brown v. Purple v. Green v. Orange...???

NICE (2000) recommended that children under 5 needing inhalers should always use a metered dose inhaler (MDI) and spacer. In 2002 they stated that inhaled steroids were best administered via the same route for 5-15 year olds but that the choice of devices for bronchodilators (relievers) for this age group could be widened. We now have a bewildering plethora of different coloured, shaped and activated devices available to prescribe. When a child says they take 1 puff of the purple one and 2 of the blue, what does that mean?

The various inhalers (including what colour they are) are described at  
<http://www.patient.co.uk/health/inhalers-for-Asthma.htm>

I have also put together a reference table and other resources at  
<http://www.paediatricpearls.co.uk/2011/01/inhalers-for-asthma/>

There are animated clips of how to use the various devices at  
[http://www.asthma.org.uk/health\\_professionals/interactive\\_inhaler\\_demo/](http://www.asthma.org.uk/health_professionals/interactive_inhaler_demo/)

## Undescended testes (cryptorchidism) with thanks to Dr Sara Waise

Occasionally when you are examining a male infant, you may think that one or both of his testes has not yet descended into the scrotal sac. This is an important finding as the parents need to know that this needs referral by their GP to a paediatric surgeon any time after 6/12 of age. Infant testes are actually quite retractile; ask parents if they are visible in the scrotum when the baby has a warm bath.

- Check whether testes are:
  - Present or absent
  - In the inguinal canal
  - High in the scrotum
  - Able to be brought down into the scrotum
- Identify any other congenital defects
  - May be isolated
  - Can occur as part of genetic or endocrine disorders
- If the testes remain undescended at 1 year of age, referral to a urologist is needed.
- Early correction maximises future fertility potential
  - Outcome is poorer for bilateral undescended testes
  - Unclear whether surgical correction fully normalises this
- Surgical correction reduces malignancy risk
  - Facilitates self-examination
  - Risk remains 5-10 times greater than normal following orchidopexy

*True **bilateral** undescended testes need immediate referral please!*

### References

Kurpisz, M., Havryluk, A., Nakonechnyj, A., Chopyak, V. & Kamieniczna, M. (2010). Cryptorchidism and its long-term consequences. *Reproductive Biology* **10** 19-35  
Hutson, J.M., Balic, A., Nation, T. & Southwell, B. (2010). Cryptorchidism. *Seminars in Pediatric Surgery* **19** 215-234

<http://www.patient.co.uk/health/Undescended-Testis.htm> provides a useful, printable overview for parents of boys in whom you have found an undescended testis.

<http://www.patient.co.uk/doctor/Undescended-and-Maldescended-Testes.htm> has information for medical professionals and includes information about the ascending testis syndrome in the older child (around 8 to 10 years old).