

Paediatric Neurosurgery referral guidelines

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Mandatory referral content

Demographic

- > child's name
- > date of birth
- > parent/guardian contact details
- > referring GP details
- > interpreter requirements

Clinical

- > reason for referral
- > clinical urgency
- > duration of symptoms
- > management to date and response to treatment
- > relevant pathology and imaging reports
- > past medical history
- > current medications
- > functional status
- > family history

Priority

Priority will be based upon the information provided in this referral. They will be triaged by a Paediatric Neurosurgical Consultant according to the clinic process and booked accordingly:

Emergency:	Proceed to the emergency department and contact the Neurosurgical Registrar via the hospital switchboard.
Urgent:	Contact the Neurosurgery Registrar via the hospital switchboard. We aim to see these patients as soon as possible.
Semi-urgent	Next available appointment.
Routine:	Please note waiting periods are dependent on the demand on the service.

To help us best triage your referral it may be returned for further investigations if the following process has not been adhered to.

Please note this is a guideline for referral only. If concerned about a patient please contact the Neurosurgery Registrar via switchboard on 8161 7000.

Raised intracranial pressure (ICP) – pre referral

Initial pre-referral workup	GP assessment required	Guidelines for specialist referral
<p>Presentation</p> <p>Signs of raised intracranial pressure- may have one or more:</p> <ul style="list-style-type: none"> > Deteriorating consciousness, coma > Unexplained change in cognitive ability > Significant changes in limb strength/balance > Seizures > Severe headache (may be worse in morning) > Vomiting > Visual changes ie: diplopia > Photophobia > In infant: <ul style="list-style-type: none"> • Sunsetting eyes (eyes unable to look up) • Fontanelle (soft spot on top head) full and firm when upright & quiet > Midline shift on CT/MRI 	<p>Neurological examination</p> <ul style="list-style-type: none"> > Glasgow coma scale > Pupil reaction to light > Limb strengths > Visual acuity > In infant: <ul style="list-style-type: none"> • Sunsetting eyes (eyes unable to look up) • Fontanelle full and firm when upright and quiet • Head circumference > Send any relevant imaging if available 	<p>Emergency</p> <p>If child has deteriorating consciousness, coma</p> <ul style="list-style-type: none"> > Immediate referral to emergency department and contact on-call neurosurgery registrar via switch board 81617000

Hydrocephalus - acute – pre referral

Initial pre-referral workup	GP assessment required	Guidelines for specialist referral
<p>Clinical History</p> <ul style="list-style-type: none"> > Hydrocephalus found on imaging. > Finding may be incidental with no neurological deficit <p>OR</p> <ul style="list-style-type: none"> > Imaging ordered due to symptoms <p>Presentation</p> <ul style="list-style-type: none"> > Neurological status varies, including: <ul style="list-style-type: none"> • Asymptomatic • Neurological deficit • Sign/s of raised ICP 	<p>Neurological examination</p> <ul style="list-style-type: none"> > Glasgow coma scale > Pupil reaction to light > Limb strengths > Visual acuity > In infant: <ul style="list-style-type: none"> • Sunsetting eyes (eyes unable to look up) • Fontanelle full and firm when upright and quiet • Head circumference <p>Other:</p> <ul style="list-style-type: none"> > Send any available relevant: <ul style="list-style-type: none"> • CT/MRI • Blood results • Other investigations 	<p>Emergency</p> <ul style="list-style-type: none"> > If child has deteriorating consciousness, coma > Immediate referral to emergency department and contact on-call neurosurgery registrar via switch board 81617000 <p>Urgent</p> <ul style="list-style-type: none"> > For all other non-immediate life threatening symptoms > Contact on-call neurosurgery registrar via switch board 81617000

Macrocephaly/Increasing head circumference – pre referral

Initial pre-referral workup	GP assessment required	Guidelines for specialist referral
<p>Clinical history</p> <ul style="list-style-type: none"> > There may be several causes of macrocephaly and increasing head circumference in infants and toddlers including hydrocephalus <p>Presentation</p> <ul style="list-style-type: none"> > Head circumference rapidly increasing outside of normal range for sex and age 	<p>Neurological examination</p> <ul style="list-style-type: none"> > Glasgow coma scale > Pupil reaction to light > Limb strengths > Visual acuity > In infant: <ul style="list-style-type: none"> • Sunsetting eyes (eyes unable to look up) • Fontanelle full and firm when upright and quiet • Head circumference <p>Other:</p> <ul style="list-style-type: none"> > Send any available relevant: <ul style="list-style-type: none"> • CT/MRI • Blood results • Other investigations • Head circumference measurements ie: child's CAFHS booklet > Reassure parents 	<p>Urgent</p> <ul style="list-style-type: none"> > If symptomatic contact on-call neurosurgery registrar via switch board 81617000 <p>Routine</p> <ul style="list-style-type: none"> > For asymptomatic increasing head circumference

Blocked or infected ventricular shunt - pre referral

Initial pre-referral workup	GP assessment required	Guidelines for specialist referral
<p>Clinical history</p> <ul style="list-style-type: none"> > Child has ventricular shunt to manage hydrocephalus > Ventricular shunts in children may block or become infected. This will cause shunt failure- this is a medical emergency immediate action is required <p>Presentation</p> <ul style="list-style-type: none"> > Child has signs of blocked or infected shunt 	<p>Neurological examination</p> <ul style="list-style-type: none"> > Glasgow coma scale > Pupil reaction to light > Limb strengths > Visual acuity > In infant: <ul style="list-style-type: none"> • Sunsetting eyes (eyes unable to look up) • Fontanelle full and firm when upright and quiet • Head circumference <p>Other:</p> <ul style="list-style-type: none"> > Send any available relevant: <ul style="list-style-type: none"> • CT/MRI • Blood results • Other investigations 	<p>Emergency</p> <ul style="list-style-type: none"> > Immediate referral to emergency department and contact on-call neurosurgery registrar via switch board 81617000

Intracranial Tumour/Lesion - pre referral

Initial pre-referral workup	GP assessment required	Guidelines for specialist referral
<p>Clinical history</p> <p>Intracranial tumour found on imaging.</p> <p>> Finding may be incidental with no neurological deficit</p> <p>OR</p> <p>> Imaging ordered due to symptoms</p> <p>Presentation</p> <p>> Neurological status varies, including:</p> <ul style="list-style-type: none"> • Asymptomatic • Neurological deficit • Sign/s of raised ICP 	<p>Neurological examination</p> <ul style="list-style-type: none"> > Glasgow coma scale > Pupil reaction to light > Limb strengths > Visual acuity > In infant: <ul style="list-style-type: none"> • Sunsetting eyes (eyes unable to look up) • Fontanelle full and firm when upright and quiet • Head circumference <p>Other:</p> <ul style="list-style-type: none"> > Send any available relevant: <ul style="list-style-type: none"> • CT/MRI • Blood results • Other investigations 	<p>Urgent</p> <ul style="list-style-type: none"> > Contact on-call neurosurgery registrar via switch board 81617000

Intracranial vascular disorder - pre referral

Initial pre-referral workup	GP assessment required	Guidelines for specialist referral
<p>Clinical history</p> <p>> Intracranial vascular disorders include:</p> <ul style="list-style-type: none"> • arteriovenous malformation (AVM) • aneurysm • cavernoma • Moya Moya disease • Vein of Galen malformation <p>> Intracranial vascular disorder diagnosed on imaging.</p> <p>> Incidental finding with no neurological deficit</p> <p>OR</p> <p>> Imaging ordered due to symptoms</p> <p>Presentation</p> <p>> Neurological status varies including:</p> <ul style="list-style-type: none"> • Asymptomatic • Neurological deficit • Sign/s of raised ICP 	<p>Neurological examination</p> <ul style="list-style-type: none"> > Glasgow coma scale > Pupil reaction to light > Limb strengths > Visual acuity > In infant: <ul style="list-style-type: none"> • Sunsetting eyes (eyes unable to look up) • Fontanelle full and firm when upright and quiet • Head circumference <p>Other:</p> <ul style="list-style-type: none"> > Send any available relevant: <ul style="list-style-type: none"> • CT/MRI • Blood results • Other investigations 	<p>Urgent</p> <ul style="list-style-type: none"> > Contact on-call neurosurgery registrar via switch board 81617000

Intracranial haemorrhage - pre referral

Initial pre-referral workup	GP assessment required	Guidelines for specialist referral
<p>Clinical history</p> <ul style="list-style-type: none"> > Cause of haemorrhage may be: head injury, vascular disorder > Haemorrhage diagnosed on imaging > Imaging ordered due to symptoms and/or recent head injury <p>Presentation</p> <ul style="list-style-type: none"> > Neurological status varies, including: <ul style="list-style-type: none"> • Asymptomatic • Neurological deficit • Sign/s of raised ICP 	<p>Neurological examination</p> <ul style="list-style-type: none"> > Glasgow coma scale > Pupil reaction to light > Limb strengths > Visual acuity > In infant: <ul style="list-style-type: none"> • Sunsetting eyes (eyes unable to look up) • Fontanelle full and firm when upright and quiet • Head circumference <p>Other:</p> <ul style="list-style-type: none"> > Send any available relevant: <ul style="list-style-type: none"> • CT/MRI • Blood results • Other investigations 	<p>Urgent</p> <ul style="list-style-type: none"> > Contact on-call neurosurgery registrar via switch board 81617000

Head injury - pre referral

Initial pre-referral workup	GP assessment required	Guidelines for specialist referral
<p>Clinical history</p> <ul style="list-style-type: none"> > Obtain history of head injury including: mechanism, witnesses, loss of consciousness (duration), seizure, vomiting, headache. > Head injury may cause: concussion, diffuse axonal injury (DAI), skull fractures, soft tissue lacerations, CSF leak, intracranial haematomas, brain contusions <p>Presentation</p> <ul style="list-style-type: none"> > Neurological status varies, including: <ul style="list-style-type: none"> • Asymptomatic • Neurological deficit • Signs of raised ICP 	<p>Neurological examination</p> <ul style="list-style-type: none"> > Glasgow coma scale > Pupil reaction to light > Limb strengths > Visual acuity > In infant: <ul style="list-style-type: none"> • Sunsetting eyes (eyes unable to look up) • Fontanelle full and firm when upright and quiet • Head circumference <p>Other:</p> <ul style="list-style-type: none"> > Send any available relevant: <ul style="list-style-type: none"> • CT/MRI • Blood results • Other investigations 	<p>Emergency</p> <ul style="list-style-type: none"> > If child has deteriorating consciousness, coma > Immediate referral to emergency department and contact on-call neurosurgery registrar via switch board 81617000 <p>Non-emergency</p> <ul style="list-style-type: none"> > Present to emergency department for assessment

Spinal Tumour/Lesion - pre referral

Initial pre-referral workup	GP assessment required	Guidelines for specialist referral
<p>Clinical history</p> <ul style="list-style-type: none"> > Spinal tumour found on imaging. > Incidental finding with no neurological deficit <p>OR</p> <ul style="list-style-type: none"> > Imaging ordered due to symptoms <p>Presentation</p> <ul style="list-style-type: none"> > Onset of numbness/weakness in limb/s > Changes in bowel or bladder function > Back pain > Altered sensation inner thighs/buttocks > Cauda Equine syndrome 	<p>Neurological examination</p> <ul style="list-style-type: none"> > Glasgow coma scale > Pupil reaction to light > Limb strengths > Visual acuity > In infant: <ul style="list-style-type: none"> • Sunsetting eyes (eyes unable to look up) • Fontanelle full and firm when upright and quiet • Head circumference <p>Other:</p> <ul style="list-style-type: none"> > Send any available relevant: <ul style="list-style-type: none"> • CT/MRI • Blood results • Other investigations 	<p>Urgent</p> <ul style="list-style-type: none"> > Contact on-call neurosurgery registrar via switch board 81617000

Chiari malformation - pre referral

Initial pre-referral workup	GP assessment required	Guidelines for specialist referral
<p>Clinical history</p> <ul style="list-style-type: none"> > Many children and adults have chiari I malformation that cause no symptoms and require no treatment > Chiari malformation found on imaging. > Incidental finding with no neurological effects <p>OR</p> <ul style="list-style-type: none"> > Imaging ordered due to symptoms <p>Presentation</p> <ul style="list-style-type: none"> > May be asymptomatic <p>OR</p> <ul style="list-style-type: none"> > May have headache/neck pain +/-other neurological deficit or sign/s of raised ICP 	<p>Neurological examination</p> <ul style="list-style-type: none"> > Glasgow coma scale > Pupil reaction to light > Limb strengths > Visual acuity > In infant: <ul style="list-style-type: none"> • Sunsetting eyes (eyes unable to look up) • Fontanelle full and firm when upright and quiet • Head circumference > Check hearing- does child report ringing or buzzing > Any swallowing difficulty? <p>Other:</p> <ul style="list-style-type: none"> > Send any available relevant: <ul style="list-style-type: none"> • CT/MRI • Blood results • Other investigations > Reassure parents 	<p>Semi-urgent</p> <ul style="list-style-type: none"> > If headache/neck pain <p>Routine</p> <ul style="list-style-type: none"> > If asymptomatic

Open neural tube defect (myelomeningocele, spina bifida) - pre referral

Initial pre-referral workup	GP assessment required	Guidelines for specialist referral
<p>Clinical history</p> <ul style="list-style-type: none"> > Usually diagnosed antenatally and appropriate medical teams will be involved in delivery > Rarely is undiagnosed myelomeningocele discovered at birth > Emergency surgery required to prevent further damage to the spinal cord and infection > Associated with: Hydrocephalus, Chiari malformation, bladder and bowel dysfunction <p>Presentation</p> <ul style="list-style-type: none"> > Sac protruding through spinal defect 	<p>Neurological examination</p> <ul style="list-style-type: none"> > Glasgow coma scale > Pupil reaction to light > Limb strengths > Visual acuity > In infant: <ul style="list-style-type: none"> • Sunsetting eyes (eyes unable to look up) • Fontanelle full and firm when upright and quiet • Head circumference <p>Other:</p> <ul style="list-style-type: none"> > Send any available relevant: <ul style="list-style-type: none"> • CT/MRI • Blood results • Other investigations 	<p>Urgent</p> <ul style="list-style-type: none"> > Contact on-call neurosurgery registrar via switch board 81617000

Closed neural tube defect (tethered cord, spina bifida occulta) - pre referral

Initial pre-referral workup	GP assessment required	Guidelines for specialist referral
<p>Clinical history</p> <ul style="list-style-type: none"> > Closed neural tube defect found on imaging > Incidental finding with no neurological effects <p>OR</p> <ul style="list-style-type: none"> > Imaging ordered due to neurological symptoms <p>Presentation</p> <p>Associated with:</p> <ul style="list-style-type: none"> > Anomaly of midline lumbosacral spine including: tufts of hair, skin tags, dimples or birthmark > Pain/weakness in legs > Change in bladder/bowel function 	<p>Neurological examination</p> <ul style="list-style-type: none"> > Glasgow coma scale > Pupil reaction to light > Limb strengths > Visual acuity > In infant: <ul style="list-style-type: none"> • Sunsetting eyes (eyes unable to look up) • Fontanelle full and firm when upright and quiet • Head circumference <p>Other:</p> <ul style="list-style-type: none"> > Send any available relevant: <ul style="list-style-type: none"> • CT/MRI • Blood results • Other investigations 	<p>Urgent</p> <ul style="list-style-type: none"> > If symptomatic > Contact on-call neurosurgery registrar via switch board 81617000 <p>Otherwise:</p> <p>Routine</p> <ul style="list-style-type: none"> > Only if asymptomatic

For more information

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