McMaster University

Hamilton Health Sciences

NEUROSURGICAL REFERRAL

Please fax completed referral form to 905-577-1403 Sunday-Thursday. Neurosurgery will contact you by 10:00 the next day

Patient's Last Name First Name

Address

Place Patient Sticker Here

Date of Birth (yyyy/mm/dd) Age Gender ☐ M ☐ F

Referral Date (yyyy/mm/dd) 07/Feb/2023 18:27 **Referral Time** (hh:mm) _____

Referral Hospital:	**Patient location:** ☐ Home ☐ ED ☐ Inpatient ☐ Other: _____	
Referring Physician:	**Physician Billing #**	**Contact Tel:**
Physician Signature:	**To ensure appropriate referral, please review "Criticall Ontario Consultation Guidelines" before referring: http://www.criticall.org/Article/Consultation-Guidelines**	

Reason for Referral:

PLEASE INDICATE BELOW THE DIAGNOSTIC IMAGING THAT HAS BEEN COMPLETED as per suggested with diagnoses:

☐ MRI ☐ with gadolinium
☐ CT scan ☐ CTA ☐ X-rays _____ ☐ Other _____

Brain Signs and Symptoms

☐ None	☐ Changes in speech	☐ Changes in hearing	☐ Paresthesia
☐ New onset headache	☐ History of head trauma	☐ Nausea & Vomiting	☐ Change in gait
☐ Memory changes	☐ History of cancer	☐ Dizziness	☐ Change in coordination
☐ Personality changes	☐ New onset seizures	☐ Weakness	☐ Changes in vision

☐ Other: _____

FURTHER IMAGING REQUIRED PRIOR TO REFERRAL BASED ON PRELIMINARY DIAGNOSIS:

Preliminary Diagnosis:	**Imaging to be completed:**
☐ Hemorrhage ≤ 2.0 cm →	☐ CT/CTA head
☐ Vasc. Malformation/no Intracranial bleed →	☐ CT/CTA head
☐ Chronic subdural hematoma →	☐ CT head
☐ Closed linear skull fracture →	☐ CT head
☐ Evidence of tumour/neoplasm →	☐ CT head ☐ MRI with gadolinium (if available)
☐ Other: _____	

Please Note: Patients with hypertensive supratentorial hemorrhagic stroke ≤ 3.0cm, **DO NOT** require Neurosurgical consult and can be medically managed by neurology or internal medicine at local hospital.
All infratentorial Hemorrhages ≥ 3.0 cm, need to be discussed with Neurosurgeon through Criticall.

Legend:
≤ = Less than or equal to
≥ = Greater than or equal to

If the patient's condition deteriorates during the wait for consultation, contact CritiCall at 1-800-668-4357 and speak with a neurosurgeon on call.

Next Day Referral for Cranial Neurosurgery Patients

Hamilton Health Sciences

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Next Day /Referral Form

Purpose of this referral

- To decrease call volumes during off hours (2300-0700 hrs) for non urgent patients
- Assist referring sites with diagnostic imaging required
- Decrease the time referring sites have patients waiting in the ED department

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Next Day/Urgent Referral Form

Who are appropriate for this referral?

All cranial patients that present to the emergency departments which fit the criteria under the Next Morning Referral (green section) according to the Provincial Neurosurgical Consultation Referral guidelines

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Process at the Referring Facilities

1. Identify the patient as a Next Morning Referral per the Provincial Neurosurgical Consultation Referral guidelines
2. Referring facility to arrange the diagnostic imaging as requested on the form
3. Fill out form and fax to Hamilton General 905-577-1403 (on the form)

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Process continued …

- The forms will be faxed from referring site
  - Sunday thru Thursday for review Monday thru Friday at Hamilton General Hospital (HGH)
  - Excluding holidays
- During weekends and holidays referrals will be reviewed Monday or Tuesday if it is happens to be a long weekend

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Process of Referral Form at Receiving Site

- The referring facility will receive a call with a plan of care once the neurosurgeon has reviewed the case
- It is the responsibility of the referring facility to determine if the patient is stable and safe to be discharged home
- If the patient is discharged HHS will follow up with the patient information provided on referral form

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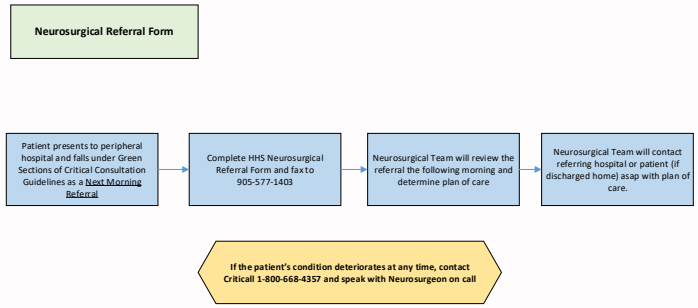
Process Flow Map



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Contact Information

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Isolated Head Trauma

Neurosurgery Consultation Referral Guidelines

Legend:
- Next Morning Referral
- Emergent/Urgent
- Life or Limb

Clinical Presentation

- GCS = 15

AND evidence of:
- ❑ No visible skull fracture
- ❑ No neurological deficit

- GCS = 14-15

AND evidence of one or more of:
- ❑ Open skull fracture
- ❑ Mild focal neurological deficit
  - With/without headache

- GCS ≤ 13

AND evidence of one or more of:
- ❑ Penetrating head injury
- ❑ Rapid onset, progressive neurological deterioration

If no CT/MR scan services available but significant neurological deficit (GCS <12), seek consultation through CritiCall Ontario prior to arranging for transfer for CT/MR imaging.

Imaging: Abnormal CT/MRI Findings

CT/MRI images should be interpreted by the local radiologist prior to seeking neurosurgical consultation via CritiCall Ontario, unless the hospital does not have CT/MRI services.

AND evidence of one or more of:
- ❑ Chronic subdural hematoma
- ❑ Closed, linear skull fracture

AND evidence of one or more of:
- ❑ Intracerebral hemorrhage
- ❑ Acute subdural hematoma
- ❑ Epidural hematoma
- ❑ Brain contusion
- ❑ Chronic subdural hematoma
- ❑ Confirmation of skull fracture
- ❑ Diffuse brain injury (i.e., brain swelling, cisternal or sulcul obliteration)

AND evidence of one or more of:
- ❑ Intracerebral hematoma
- ❑ Acute subdural hematoma
- ❑ Epidural hematoma
- ❑ Brain contusion
- ❑ Diffuse brain injury (i.e., brain swelling, cisternal or sulcul obliteration)

Referral Directive

Next Morning Referral

CONSULT WITH NEUROSURGEON NEXT MORNING (7 AM)**

*** Local arrangements can be made to determine the preferred time to consult with a neurosurgeon for Next Morning Referrals.*

Emergent/Urgent

Life or Limb

CALL CRITICALL ONTARIO
1-800-668-4357

Disease Specific Management

ISOLATED HEAD TRAUMA:
- Give Dilantin 15-20 mg/kg if documented seizure or GCS ≤ 8.
- Give Mannitol 1.5g/kg for suspected raised ICP.
- Do not use steroids for raised ICP.
- Assume C-Spine injury and maintain spine precautions.
- If penetrating object, stabilize but do not remove.

SCAN THIS QR CODE using your mobile device to access an interactive web-based version of these guidelines.

The criteria are intended as guidelines. Providers are to rely on their clinical judgement for each individual patient encounter.

Version 2.0 (December 2018)

CCSO Critical Care Services Ontario
www.criticalcareontario.ca

Brain Tumours

Neurosurgery Consultation Referral Guidelines

Legend:
- Next Morning Referral
- Emergent/Urgent
- Life or Limb

Clinical Presentation

- GCS =15

AND evidence of one or more of :
- ❑ With/without headache
- ❑ Medically controlled seizures
- ❑ Mild or no focal neurological deficit

- GCS = 14*-15

AND evidence of one or more of:
- ❑ With/without headache
- ❑ Progressive focal neurological deficit (cranial nerve or motor deficit)
- ❑ Multiple and/or uncontrolled seizures
- ❑ Not fully recovering, postictal
- ❑ Indications of raised intracranial pressure (nausea, vomiting, and headache)

** With the exception of mild confusion due to existing dementia or a focal deficit related to the lesion (e.g., dysphasia)*

- GCS ≤13

AND evidence of one or more of:
- ❑ With/without headache
- ❑ Uncontrolled seizures
- ❑ Severe and/or progressive focal neurological deficit (e.g., motor weakness that is stable or very slowly progressive)
- ❑ Signs of raised ICP (e.g., headache with nausea and vomiting and/or bradycardia)
- ❑ Clinical evidence of herniation
  - Consider patient for transfer if clinical evidence of herniation

Imaging: Abnormal CT/MRI Findings

CT/MRI images should be interpreted by the local radiologist prior to seeking neurosurgical consultation via CritiCall Ontario, unless the hospital does not have CT/MRI services.

- Evidence of tumor/neoplasm

NB: May be incidental findings for other investigations

- Evidence of tumor/neoplasm

- Evidence of tumor/neoplasm

AND evidence of one or more of:
- ❑ Obstructive hydrocephalus
- ❑ Intratumoural hemorrhage

Referral Directive

Next Morning Referral

CONSULT WITH NEUROSURGEON NEXT MORNING (7 AM)**

*** Local arrangements can be made to determine the preferred time to consult with a neurosurgeon for Next Morning Referrals*

Emergent/Urgent

Life or Limb

CALL CRITICALL ONTARIO
1-800-668-4357

Disease Specific Management

BRAIN TUMOURS:
- Give Dilantin 15-20 mg/kg for documented seizures.
- Give Decadron 10 mg loading dose followed by 4 mg IV q6H.

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Intracerebral Hemorrhage

Neurosurgery Consultation Referral Guidelines

Legend:
- Next Morning Referral
- Emergent/Urgent
- Life or Limb

Clinical Presentation

- GCS = 15

AND evidence of:
- ❑ Neurologically stable
- ❑ With/without headache

- GCS = 14*-15

AND evidence of one or more of:
- ❑ Mild focal neurological deficit with no/slow progression
- ❑ With/without headache

** With the exception of mild confusion due to existing dementia or a focal deficit related to the lesion (e.g., dysphasia)*

- GCS ≤ 13

AND evidence of one or more of:
- ❑ Progressive neurological deterioration

Imaging: Abnormal CT/MRI Findings

CT/MRI images should be interpreted by the local radiologist prior to seeking neurosurgical consultation via CritiCall Ontario, unless the hospital does not have CT/MRI services.

AND evidence of one or more of:
- ❑ Any hemorrhage ≤ 2.0 cm
- ❑ Vascular malformation with resolved intracranial hemorrhage

NB: Patients with hypertensive hemorrhagic stroke (≤ 3.0cm) are medically managed by neurology and do not require urgent consultation.

AND evidence of one ore more of:
- ❑ Infratentorial intracranial hemorrhage without obstructive hydrocephalus
- ❑ Intraventricular hemorrhage
- ❑ Supratentorial hemorrhage: 2-5 cm
- ❑ *Non-traumatic* subarachnoid hemorrhage

AND evidence of one more of:
- ❑ Obstructive hydrocephalus
- ❑ Infratentorial intracranial hemorrhage ≥ 3 cm
- ❑ Lobar hemorrhage ≥ 5 cm
- ❑ *Non-traumatic* subarachnoid hemorrhage

If no CT/MR scan services available but significant neurological deficit (e.g., lateralizing signs, GCS <12, presence of xanthochromia in lumbar puncture), seek consultation through CritiCall Ontario prior to arranging for transfer for CT/MR imaging.

Referral Directive

Next Morning Referral	Emergent/Urgent	Life or Limb
CONSULT WITH NEUROSURGEON NEXT MORNING (7 AM)**	CALL CRITICALL ONTARIO 1-800-668-4357	

*** Local arrangements can be made to determine the preferred time to consult with a neurosurgeon for Next Morning Referrals.*

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Disease Specific Management

NON-TRAUMATIC SUBARACHNOID HEMORRHAGE:
- Keep systolic blood pressure (SBP) between 120mmHG and 180mmHG (use pressors or antihypertensives as necessary).
- Consult neurosurgeon prior to giving Mannitol.

INTRACEREBRAL HEMORRHAGE:
- Give Dilantin 15-20 mg/kg for documented seizures.
- Manage and set target BP in consultation with neurosurgeon.
- Discuss with neurosurgeon the appropriateness of transfer using CT and clinical criteria.

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