

**Figure 1: Neurosurgery Outreach - Connecting with Regional Hospitals across Ontario**

In 2011, the Ministry of Health and Long Term Care (MOHLTC) requested Critical Care Services Ontario (CCSO) to lead a planning process to develop a comprehensive neurosurgical system to meet the needs of adult and paediatric patients across Ontario. As a part of this program, the MOHLTC also committed new nursing positions, including clinical Neurosurgical Outreach Nurse and

Neurosurgical Nurse Educator positions, to support the management of specialized paediatric and adult neurosurgical patients.

The Neurosurgery Education and Outreach Network (NEON) was established in May 2013 to work in collaboration with the Provincial Neurosurgery Advisory Committee to support the educational component of recommendations to better integrate access to neurosurgical services in the province. Originally comprised of Nurse Educators and Program Directors from each of the province's adult neurosurgical centres, their work formed the foundation for an educational outreach program designed to provide a wide breadth of

education to non-neurosurgical centres on neurosurgical patient's care across the continuum. The expanded network has grown to include Clinical Nurse Specialists, Advanced Practice Nurses and Nurse Practitioners working in both adult and paediatric neurosurgery.

The OUTREACHER Newsletter will be published two to three times per year to provide regional hospitals with Neurosurgery updates and education.

## **NEON:**

**Working towards  
Provincial  
improvements in  
neurosurgical service  
delivery**

- IMPROVING ACCESS
- IMPROVING QUALITY AND RESPONSIVENESS
- IMPROVING NEUROSURGICAL NURSING CARE ACROSS ONTARIO

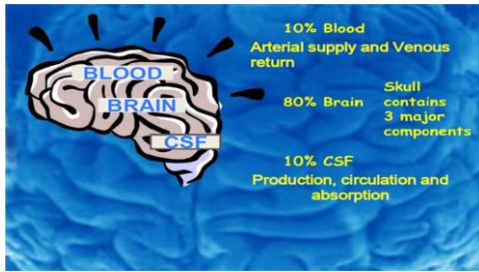
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## Intracranial pressure

Normal ICP is 0 to 15 mmHg

Intracranial pressure is the pressure within the cranium that is exerted by the combined total volume of the three components within the skull.

The goal is to maintain adequate cerebral perfusion

Nursing interventions to maintain or decrease intracranial pressure

### Positioning

- Maintain patient in good body alignment
- Neck in neutral position
- Avoid extreme neck and hip flexion
- Head of bed usually at 30 degrees /follow physicians order
- Turn patient every two (2) hours- instruct to exhale while turning if patient able
- Use pillows for positioning
- Avoid/minimize increase in intra-abdominal pressure i.e. Valsalva manoeuvre
- Avoid isometric muscle contractions i.e. pushing self up in bed
- Avoid foot boards

### Cervical collars

- Ensure proper fitting collar – not too tight to obstruct venous drainage
- Use rolled towels to keep neck in neutral position to prevent neck flexion and head rotation

## EDUCATIONAL OPPORTUNITIES IN YOUR LHIN!

### LHIN 5&6

**September 16:** Etobicoke General Hospital (Nursing education day)

**September 28:** Brampton Civic Hospital (Nursing education day)

**October 12 & 26:** Oakville-Trafalgar Memorial Hospital (Emergency department neuro Review)

**November 30:** Milton District Hospital (1100-1430)

**December 6:** Georgetown Hospital (1100-1400)

**December 14:** Oakville-Trafalgar Memorial Hospital (1100-1500)

### LHIN 10

**August 3:** Brockville General Hospital (Spinal guidelines and case studies)

**August 8:** Kingston Regional Hospital Centre (D4 ICU Case study of hydrocephalus)

**August 16:** Kingston Regional Hospital Centre (Emergency department case study of Hydrocephalus)

**August 16:** Kingston Regional Hospital Centre (K2 ICU EVD care and maintenance)

**September 11:** Kingston Regional Hospital Centre (PACU Case study of hydrocephalus)

**October 6:** Brockville General Hospital (Case studies through CritiCall)

**October 11, 18, 25:** Lennox & Addington County General Hospital (Case studies through CritiCall)

**October 25, 26:** Kingston Regional Hospital Centre (Pediatric Skills Fair- neuro Assessment)

**November 2, 9:** Lennox & Addington County General Hospital (Case studies through CritiCall)

**November 17:** Brockville General Hospital (Case studies through CritiCall)

**November 24, 30:** Northumberland Hills Hospital (Severe TBI and case studies through CritiCall)

## EDUCATIONAL OPPORTUNITIES IN YOUR LHIN! (Cont'd)

Neurosurgery Outreach education days

### LHIN 11

**August:** Pembroke Regional Hospital (Halo management and care)

**August:** Montfort Hospital (Management of behaviors associated with ABI)

### LHIN 14

2017 RCCR Program with Neurosurgery Outreach Program Regional Education

**September 12:** Atikokan General Hospital (1230-1630)

**September 13:** La Verendrye Hospital (0830-1230)

**September 15:** Red Lake Margaret Cochenour Memorial Hospital (1000-1400)

**September 21:** Lake of the Woods District Memorial Hospital (0830-1230)

**September 22:** Dryden Regional Health centre (0930-1230)

**September 26:** Sioux Lookout (1330-1730)

**October 10:** Nipigon District Memorial Hospital (1000-1400)

**October 11:** Geraldton District Hospital (0930-1230)

**October 18:** North of Superior Health Care Group - Marathon (1000-1400)

**October 19:** North of Superior Health Care Group - Terrace Bay (0830-1230)

TNCC is being offered at TBRHSC November 9 & 10, 2017 and February 8 & 9, 2018, contact Chad Johnson to sign up

## Hygiene

Bathing does not normally cause an increase in ICP but clustering activities can.

- Provide rest periods in between bathing, turning and suctioning.

## Noxious stimuli

- Space out nursing care
- Ensure drainage tubes remain free from kinks and are patent
- Decrease environmental noises such as TV's, alarms etc.
- Avoid bright lights
- Maintain a quiet environment/ quiet visiting/limit stimulation

## Bowel and bladder regimens

- A bowel routine should be established to avoid constipation – routine stool softeners and a laxative prn as ordered
- Avoid enemas
- If patient has a catheter ensure it is patent and monitor intake and output
- No catheter - monitor intake and output and monitor for bladder distention

## Respiratory management

- Maintain a patent airway
- Support adequate ventilation
- Administer oxygen as ordered
- Control intra-thoracic pressures – i.e. minimize coughing

### **Suctioning**

- Assess need for suctioning by observing the patient's colour, chest and abdominal movement, presence of secretions, oxygen saturation and perform chest auscultation
- Be alert for signs of respiratory distress – increased pulse rate, perspiration and restlessness
- Pre-oxygenate with 100% oxygen for 20-30 seconds before and after suctioning
- Suction with only one or two catheter passes
- Each pass should be less than 10 seconds

### **Temperature**

- Monitor temperature – aim for normal to low temperature
- Administer antipyretics as ordered
- Use cooling methods as ordered

### **Glucose control**

- Monitor blood glucose
- Avoid hyperglycemia and hypoglycemia
- Hyperglycemia is treated with a sliding scale of regular insulin as ordered

### **Blood pressure and Heart function**

- Ensure systolic blood pressure is within a consistent range to improve perfusion
- Monitor lab values for anemia

### **References**

- Hickey, J. (2014). *The clinical practice of neurological and neurosurgical nursing* (7<sup>th</sup> ed.). Philadelphia: Lippincott Williams & Wilkins
- Kennedy Madden, L., & March, K. (2010). Intracranial pressure management. In M. K. Bader & L. R. Littlejohns (Eds). *American association neuroscience nursing core curriculum for neuroscience nursing* (5<sup>th</sup> ed., pp.251-272). Glenview, Illinois
- Critical Care Services Ontario (2016). Intracranial pressure (ICP) causes, concerns and management. Retrieved from [https://www.criticalcareontario.ca/EN/Neurosurgical%20Care/FINAL%20ICP%20Presentation-Final-Nov30\\_2016.pdf](https://www.criticalcareontario.ca/EN/Neurosurgical%20Care/FINAL%20ICP%20Presentation-Final-Nov30_2016.pdf)

### **What's New!**

#### **Upcoming Educational Event**

#### **Care of Patient Post- Craniectomy (no bone flap)**

**Date: December 11, 2017**

**Time: 1000 to 1100 hrs.**

**OTN event Information - Event #76789616**

**To view event details:**

<https://schedule.otn.ca/tsm/portal/nonclinical/details.do?request.requestId=76789616>

### **Intracranial Pressure (ICP) Causes, Concerns and Management**

Neurosurgery Education  
and Outreach Network **NEON**

**Please visit:**

[www.criticalcareontario.ca](http://www.criticalcareontario.ca)

**For the latest neurosurgical  
guidelines and educational  
webinars**

**CCSO** Critical Care Services Ontario



LHIN	Organization	Neuro-Nurse Educator	Clinical Outreach Specialist
LHIN 1	Windsor Regional Hospital		
LHIN 2	London Health Sciences Centre	<a href="#">Kimberly Salway</a>	<a href="#">Kimberly Salway</a>
LHIN 3/4	Hamilton Health Sciences	<a href="#">Brenda Bousfield</a>	<a href="#">Klaudia Gogishvili</a> <a href="#">Sera Nicosia</a> <a href="#">Tina Petrelli (Paeds)</a>
LHIN 5/6	Trillium Health Partners	<a href="#">Beverly Espedido</a>	<a href="#">Beverly Espedido</a>
LHIN 7/8/9W/12	University Health Network	<a href="#">Charmaine Arulvarathan</a>	<a href="#">Dawn Tymianski</a>
LHIN 7/8/9W/12	St. Michael's Hospital	<a href="#">Wendy Legacy</a>	<a href="#">Jennifer Vachhrajani</a>
LHIN 7/8/9W/12	Sunnybrook Health Sciences Centre	<a href="#">Lars Kure</a>	<a href="#">Catherine Morash</a>
LHIN 7	The Hospital for Sick Children	<a href="#">Elisabeth White</a>	<a href="#">Elisabeth White</a>
LHIN 9E/10	Kingston General Hospital	<a href="#">Marnie Cranston</a>	<a href="#">Nicole Chenier-Hogan</a>
LHIN 11	The Ottawa Hospital	<a href="#">Raizha Gramcko</a>	<a href="#">Dianna Hughes</a>
LHIN 13	Health Sciences North Sudbury	<a href="#">Lisa Weiler</a>	<a href="#">Lindsay Roach</a>
LHIN 14	Thunder Bay Regional Health Sciences Centre	<a href="#">Chad Johnson</a>	<a href="#">Kim Belluz</a>

