1. **PURPOSE**

1.1 To provide effective safe pain management using epidural/intrathecal route.

1.2 To provide a consistent method of assessing patients receiving epidural/intrathecal analgesia.

2. **POLICY**

2.1 Registered Nurses, identified by their manager, will be certified in this Special Nursing Procedure to care for a patient receiving epidural/intrathecal analgesia as specified in SHR Epidural/Intrathecal Analgesia Learning Package. (Epidural analgesia refers to the administration of narcotic and/or local anesthetic.)

2.2 The anesthesiologist or designate will be the physician responsible for all orders regarding epidural analgesia initiation, maintenance, adjustment and discontinuation. See Appendix A and B.

2.3 The patient must have a patent IV for the duration of the therapy.

2.4 The anesthesiologist is available on site for the first 30 minutes after catheter is initially accessed or top up of local anesthetic is given.

2.5 The anesthesiologist/registered nurse will remain with the patient for 20 minutes following initiation or top up of the local anesthetic to monitor vital signs, motor and sensory function as per protocol.

2.6 Any additional tranquilizing, sedating, narcotic or anesthetic drugs will be ordered by the anesthesiologist or designate only.

2.7 Oxygen, resuscitative equipment and Naloxone must be readily available.
2.8 Patients receiving epidural local anesthetic or local anesthetic and narcotic combined will be monitored and assessed as per protocol. See Appendix E and F.

2.9 Prior to ambulating, patients receiving epidural local anesthetic must have a motor assessment completed. See Appendix E and F. Nursing staff or a capable designate must accompany these patients while ambulating.

2.10 Patients who have received intrathecal morphine greater than 250 micrograms require monitoring and assessment as per epidural narcotic protocol. Those patients receiving less than 250 micrograms will be monitored as per unit protocol. See Appendix B.

2.11 Monitoring and resuscitative measures are not required in the Palliative Care Unit.

2.12 All epidural infusions must be run through an epidural infusion pump (yellow Gemstar) using epidural infusion tubing (yellow stripe) with no ports and clearly label tubing and bag “EPIDURAL”.

2.13 Maintain a closed system to reduce infection risk by changing epidural solution bags only as needed when dry or medication orders change. Epidural tubing is not routinely changed.

3. PROCEDURE

3.1 The Anesthesiologist

3.1.1 Inserts the epidural catheter, secures it in place and injects medication to establish the patient’s sensory block.

3.1.2 Initiates epidural infusion.

3.1.3 Completes physician’s orders.

3.1.4 Administers top-up doses if indicated.

3.2 The Registered Nurse

3.2.1 Will ensure patient has an IV established. Baseline vital signs will be documented. Pulse oximetry may be requested by the anesthesiologist.

3.2.2 Assists the anesthesiologist in insertion of epidural catheter as per policy. (Policy #1077)

3.2.3 Verifies and documents medication bag and pump settings upon transfer of care.

3.2.4 Changes bags, adjusts dose, rate and mode of infusion including an independent double check with another certified RN.

3.2.5 Monitors patient as per appropriate protocol. See Appendix E and F. (Refer to SHR Epidural/Intrathecal Analgesia Learning Package)

3.2.6 Assesses patient for adverse effects or complications related to epidural/intrathecal analgesia (Refer to SHR Epidural/Intrathecal Analgesia learning package).

3.2.7 Initiates treatment for adverse effects as per physician’s orders and notifies the anesthesiologist or designate. See Appendix A, B and C.
3.2.8 Reports to anesthesiologist immediately the following signs and symptoms

- metallic taste in mouth
- slurred speech
- tinnitus
- tingling or peri-oral numbness
- significant hypotension
- excessive motor block
- seizure
- respiratory depression/distress
- unresponsiveness

3.2.9 Documents the following on the appropriate record

- vital signs
- assessments
- rate and cumulative PCEA dose on MAR
- complications
- pump setting changes and bag changes on MAR
- discontinuation

4. REFERENCES

Care of patients receiving epidural/intrathecal narcotics. (June 2001). Tri-Hospital Nursing Policy and Procedure Manual. Saskatoon Health Region.


Failure modes & effects analysis (FMEA): The administration of epidural medications using PCEA versus IV infusion pump. (October 2006). Risk Management, Saskatoon Health Region.


### Appendix A

**CONTINUOUS EPIDURAL INFUSION OF NARCOTIC ANALGESIA WITH OR WITHOUT LOCAL ANESTHETIC**

<table>
<thead>
<tr>
<th>Date</th>
<th>Orders and Signature</th>
<th>Processed</th>
</tr>
</thead>
</table>

1. Ensure patient IV in situ while epidural is in place

2. **EPIDURAL INFUSION:**
   - [ ] lumbar
   - [ ] thoracic
   - [ ] Bupivacaine 0.1% with epidural morphine 40 mcg/ml
   - [ ] Bupivacaine 0.1% with fentanyl 2 mcg/ml
   - [ ] Epidural morphine 50 mcg/ml
   - [ ] Other ________

3. a. Continuous Rate ________ ml/hr
   
   b. PCEA Dose ________ ml
   
   c. Lockout Interval ________ min
   
   d. Dose limit [yes] [no] ________ boluses/hr ________ ml/4hr

4. Monitor as per policy on initiation of infusion or if rate is changed

5. Bedrest [yes] [no]

   - [ ] up with assistance only

   - [ ] assess motor function prior to ambulation

6. Perform Sensory Levels [yes] [no]

   - [ ] notify anesthesiologist if level ________

7. **NOTIFY ANESTHESIOLOGIST IF:**
   
   a) **BP < ________ mmHg**

   Give IV bolus of 250 ml Normal Saline
   
   or ________ ml (10 ml/kg) IV bolus of Normal Saline (Pediatrics)

   b) **Patient somnolent, O₂ Sat. < 90%, RR < ________/min**

   **CALL STAT IF Patient UNAROUSABLE,** give O₂ at 10 L/min,

   Monitor O₂ Sat. and give Narlocone (Narcan) ________ mg IV push

   (Pediatric dose: 0.01 mg/kg)

   c) **Rescue analgesia required:** Rescue analgesia: ________ mg

   of ________ IV push q ________

**TREATMENT OF SIDE EFFECTS:**

a) **Pruritus:** Diphenhydramine (Benadryl) ________ mg IV push

   May repeat q ________ (Pediatric dose: 0.5 mg/kg)

   OR Other:

b) **Nausea/Vomiting:** Dimenhydrinate (Gravol) ________ mg IV push

   May repeat q ________ (Pediatric dose: 0.5 mg/kg)

   OR Other:

**Urinary Retention:** Insert Foley Catheter

**PHYSICIAN’S SIGNATURE**

---

Form #: 102166  09/01  Category: Orders  "EPIINF"
### Intermitting Epidural and Intrathecal Narcotics

1. Patient received: epidural/intrathecal
   - ___________ mg
   - ___________ mcg
   - (DRUG) ___________ mcg
   - at _______ hour

2. Monitor as per policy

3. Notify Anesthesiologist if:
   - a) Patient somnolent, O₂ Sat. less than 90%, RR less than _______ /min
   - CALL STAT if Patient UNAROUSABLE, give O₂ at 10 L/min,
   - Monitor O₂ Sat., and give Naloxone (Narcan) __________ mg IV push
   - (Pediatric dose: 0.01 mg/kg)
   - b) Rescue analgesia required: Rescue analgesia ___________ mg
   - of ___________ IV push q __________

5. Treatment of Side Effects:
   - a) Pruritus: Diphenhydramine (Benadryl) ___________ mg IV push
      - May repeat q ___________. (Pediatric dose: 0.5 mg/kg)
      - OR OTHER: ______________________________
   - b) Nausea/Vomiting: Dimenhydrinate (Gravol) ___________ mg IV push
      - May repeat q ___________. (Pediatric dose: 0.5 mg/kg)
      - OR OTHER: ______________________________
   - c) Urinary Retention: Insert Foley Catheter

### Orders and Signature

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME</th>
<th>INTERMITTENT EPIDURAL AND INTRATHECAL NARCOTICS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1. Patient received: epidural/intrathecal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- ___________ mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- ___________ mcg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- (DRUG) ___________ mcg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- at _______ hour</td>
</tr>
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</table>

### Processed

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<th>M A R</th>
<th>I C P</th>
<th>R E Q</th>
<th>R N</th>
</tr>
</thead>
</table>

| ALLERGIES: |}

### PHYSICIAN'S SIGNATURE

______________________________

---

Form # 102165  10/01  Category: Orders  *EPIINT*
## SASKATOON HEALTH REGION
Saskatoon, Saskatchewan

- RUH
- SCH
- SPH

### PHYSICIAN’S ORDERS

#### ALLERGIES

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME</th>
<th>ORDERS AND SIGNATURE</th>
<th>PROCESSED</th>
</tr>
</thead>
</table>

## PEDICRIC Epidural Analgesia
(for less than or equal to 40 kg)

### PATIENT WEIGHT: ________________ kg

(Do not use these orders if weight is greater than 40 kg)

Discontinue all other narcotic / analgesic / sedation orders. No other narcotics / analgesics / sedatives / hypnotics unless approved by SPEC physician.

Ensure patent IV in situ while epidural catheter is in place

Bedrest: 
- yes
- no

Epidural catheter insertion site:
- Caudal
- Lumbar
- Thoracic

Catheter inserted: ______ cm in epidural space and ______ cm at skin

### 1) Medication Orders

#### a) Epidural Ropivacaine 0.1 % with Fentanyl 1 mcg/mL

[mixing instructions on reverse]

#### b) Anti-nauseants

- Dimenhydrinate (0.5 mg/kg/dose to a max dose of 20 mg) ______mg IV/PO/PR q6h prn
- Ondansetron (0.1 mg/kg/dose to a max dose of 4 mg) ______mg IV q6h prn
- Other: ____________________________________

#### c) Anti-pruritcs

- Diphenhydramine (0.5 mg/kg/dose to a max dose of 25 mg) ______mg IV/PO q6h prn
  (max. 72 hours)                 (Do not use within 4 hours of dimenhydrinate)
- Other: ____________________________

#### d) Adjunctive Therapy

- Acetaminophen (10 - 20 mg/kg/dose) ______mg po / pr
  - QID while awake for ______ hours OR QID prn
  - Maximum dose 600 mg.

- Ketorolac (0.5 mg/kg/dose to max dose of 20 mg) ______mg IV
  - q6h for ______ hours (max. 48 hours) OR q6h pm (max. 48 hours)
  - OR Ibuprofen (4 – 10 mg/kg/dose to max dose of 400 mg) ______mg po
    - QID while awake for ______ hours OR QID prn
  - OR Naproxen (5 – 10 mg/kg/dose to max dose of 400 mg) ______mg po
    - q12h for ______ hours OR q12h prn

**NOTE:** Use only one NSAID at a time

- Morphine (0.01 - 0.02 mg/kg/dose) ______mg IV q30minutes prn if analgesia inadequate
  (max 3 doses over 4 hours); call anesthesia if still inadequate

### Print Physician Name: ____________________________

### Physician’s Signature: ____________________________
## MIXING INSTRUCTIONS FOR ROPIVACAINE

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Ropivacaine 0.1% (plain)</th>
<th>Ropivacaine 0.1% with Fentanyl 1 mcg/mL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ropivacaine 0.2% (2 mg/mL) – 100 mL bag</td>
<td>remove 50 mL</td>
<td>remove 50 mL</td>
</tr>
<tr>
<td>Fentanyl 50 mcg/mL – 2 mL ampoule</td>
<td>none</td>
<td>add 2 mL</td>
</tr>
<tr>
<td>Normal Saline</td>
<td>add 50 mL</td>
<td>add 48 mL</td>
</tr>
</tbody>
</table>
### 2) Patient Monitoring (Refer to Tri-Site Epidural Policy 1047)

- Monitor / record RR, HR, O₂ saturation, sedation and comfort levels upon initiation, dose increase or dose decrease:
  - q15min x 4; q1h x 4; then q4h until epidural is discontinued
- Maintain O₂ saturation greater than 92%
- Naloxone to be immediately available on the unit
- Urinary retention: Insert foley to straight drainage prn and review in 24 hours

### 3) Emergency Procedures – Respiratory Depression

- If patient somnolent, O₂ saturation less than 90% on room air or RR less than_____:
  - **Normal RR**
    - **Birth - 6 months**
    - **6 months - 1 year**
    - **1 - 3 years**
    - **3 - 6 years**
    - **6 - 10 years**
    - **10 - 17 years**

  
<table>
<thead>
<tr>
<th>Age</th>
<th>Birth - 6 months</th>
<th>6 months – 1 year</th>
<th>1 – 3 years</th>
<th>3 – 6 years</th>
<th>6 – 10 years</th>
<th>10 – 17 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal RR</td>
<td>45 ±15</td>
<td>35 ±10</td>
<td>25 ±15</td>
<td>20 ±4</td>
<td>17 ±3</td>
<td>14 ±2</td>
</tr>
</tbody>
</table>

  - **i)** Stop epidural and call anesthesia STAT
  - **ii)** Administer O₂ at 10 liters per minute by facemask
  - **iii)** Give Naloxone (0.005 – 0.01 mg/kg) _____mg IV stat
    - May repeat Naloxone _____mg q 5 minutes x 2 doses
    - (to be discontinued when epidural discontinued)

### 4) Contact SPEC (Anesthesia) via Switchboard if:

- Inadequate pain control
- Nausea or pruritis not responding to treatment
- Problems or concerns with epidural pump

---

**Print Physician Name:**

**Physician’s Signature:**

---

**Word** Form #XXXXX **XX/10** Category: Orders **EPIDPED2**
## MIXING INSTRUCTIONS FOR ROPIVACAINE

<table>
<thead>
<tr>
<th></th>
<th>ROPIVACAINE 0.1% (plain)</th>
<th>ROPIVACAINE 0.1% with FENTANYL 1 mcg/mL</th>
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<td>remove 50 mL</td>
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<tr>
<td>Fentanyl 50 mcg/mL – 2 mL ampoule</td>
<td>none</td>
<td>add 2 mL</td>
</tr>
<tr>
<td>Normal Saline</td>
<td>add 50 mL</td>
<td>add 48 mL</td>
</tr>
</tbody>
</table>
ADULT EPIDURAL/ INTRATHECAL ANALGESIA MONITORING

### Monitoring for Narcotic Only

<table>
<thead>
<tr>
<th>Pain Scale</th>
<th>Sedation Scale</th>
<th>Motor Function Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 No pain</td>
<td>S Normal sleep, easy to rouse</td>
<td>2 No weakness</td>
</tr>
<tr>
<td>0 Alert</td>
<td>1 Some weakness of legs/feet</td>
<td></td>
</tr>
<tr>
<td>1 Sometimes drowsy</td>
<td>0 Unable to move legs/feet</td>
<td></td>
</tr>
<tr>
<td>2 Frequently drowsy, easy to arouse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10 Worst Pain</td>
<td>3 Somnolent, difficult to arouse</td>
<td></td>
</tr>
</tbody>
</table>

### Monitoring for Anesthetic & Narcotic Infusions

**RR, SpO2, sedation and pain score**

Monitor on initiation or rate/dose adjustment

<table>
<thead>
<tr>
<th>Sensory Level</th>
<th>Motor Function Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>* q 15 min. x 4,</td>
<td>* q4h until 24 hours after last bolus</td>
</tr>
<tr>
<td>* q1h x 2,</td>
<td>* q4h</td>
</tr>
<tr>
<td>* q4h until 24 hrs after narcotic discontinued</td>
<td></td>
</tr>
</tbody>
</table>

**Bladder Function**

Monitor on initiation or rate/dose adjustment

<table>
<thead>
<tr>
<th>Sensory Level</th>
<th>Motor Function Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>* q 15 min x 4,</td>
<td>* q1h x 4,</td>
</tr>
<tr>
<td>* q1h x 4,</td>
<td>* q4h</td>
</tr>
<tr>
<td>* q2h x 8,</td>
<td>* q4h &amp; prior to ambulation</td>
</tr>
<tr>
<td>* q4h until 24 hours after epidural discontinued</td>
<td></td>
</tr>
</tbody>
</table>
### Pediatric Epidural/Intrathecal Analgesia Monitoring

<table>
<thead>
<tr>
<th>Pain Scale</th>
<th>Sedation Scale</th>
<th>Motor Function Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>Normal sleep, easy to rouse</td>
<td>2 No weakness</td>
</tr>
<tr>
<td>0</td>
<td>Alert</td>
<td>1 Some weakness of legs/feet</td>
</tr>
<tr>
<td>1</td>
<td>Sometimes drowsy</td>
<td>0 Unable to move legs/feet</td>
</tr>
<tr>
<td>2</td>
<td>Frequently drowsy, easy to arouse</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Somnolent, difficult to arouse</td>
<td></td>
</tr>
</tbody>
</table>

#### Monitoring for Narcotic Only

Monitor on initiation or rate/dose adjustment

<table>
<thead>
<tr>
<th>RR, HR, O₂ Saturation, Sedation &amp; Comfort Levels</th>
<th>Sensory Level &amp; Motor Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>* q 15 min. x 4</td>
<td>* q1 h x 4,</td>
</tr>
<tr>
<td>* q1 h x 4 then</td>
<td>* q4 h</td>
</tr>
<tr>
<td>* q4 h until 24 hrs after narcotic discontinued</td>
<td>Dermatome Checks</td>
</tr>
<tr>
<td>* SpO₂ continuous monitoring</td>
<td>child under 8 yrs of age – refer to dermatome chart below</td>
</tr>
<tr>
<td></td>
<td>child 8 yrs &amp; older refer to adult dermatome chart (Appendix D)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Bladder Function</th>
<th>Dermatome Chart Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>* q4 h</td>
<td>Motor Function</td>
</tr>
<tr>
<td></td>
<td>* q1 h</td>
</tr>
<tr>
<td></td>
<td>* q4 h &amp; prior to ambulation</td>
</tr>
</tbody>
</table>
Pain Measurement Tool

**PAIN INTENSITY SCORES**
- Age 8+: Start with (A). If it doesn’t work use (B). If that doesn’t work use (C).
- Age 4+: Start with (B). If it doesn’t work use (C).
- If the child is term birth to 3 years, or unable to give self-report, use (C).

**A** Self-report for verbal patients 8 years and up: Verbal Numerical Scale (VNS)  
I’d like you to tell me a number from 0 to 10 to show how much it hurts right now (how much hurt or pain you have). 0 would be no pain or no hurt at all. 10 would be the most hurt or the worst hurt you could have. (For patients who need a simpler verbal self-report scale: "no pain" = 0  "mild" = 1-3  "moderate" = 4-7  "severe" = 8-10)

**B** Self-report for age 4 years and up: Faces Pain Scale – Revised (FPS-R)
These faces show how much something can hurt. This face [point to left-most face] shows no pain. The faces show more and more pain [point to each from left to right] up to this one [point to right-most face] – it shows very much pain. Point to the face that shows how much you hurt [right now].

**C** Observation for infants up to adolescents: FLACC
Sum the five scores to produce a score from 0 to 10

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Score 0</th>
<th>Score 1</th>
<th>Score 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Face</td>
<td>No particular expression or smile</td>
<td>Occasional grimace or frown, withdrawn, uninterested</td>
<td>Frequent to constant queruing chin, clenched jaw</td>
</tr>
<tr>
<td>Legs</td>
<td>Normal position or relaxed</td>
<td>Uneasy, restless, tense</td>
<td>Kicking, or legs drawn up</td>
</tr>
<tr>
<td>Activity</td>
<td>Lying quietly, normal position, moves easily</td>
<td>Squirming, shifting back and forth, tense</td>
<td>Arched, rigid or jerking</td>
</tr>
<tr>
<td>Cry</td>
<td>No cry (awake or asleep)</td>
<td>Moans or whimpers; occasional complaint</td>
<td>Crying steadily, screams or sob, frequent complaints</td>
</tr>
<tr>
<td>Consolability</td>
<td>Content, relaxed</td>
<td>Reassured by occasional touching, hugging or being talked to, distractible</td>
<td>Difficult to console or comfort</td>
</tr>
</tbody>
</table>