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# **KINGSTON GENERAL HOSPITAL NURSING SERVICE**

## **CARE OF THE PATIENT FOLLOWING SPINAL (INTRATHECAL) ANESTHESIA/ANALGESIA**

### **LEARNING GUIDE**

**This learning guide has been developed by  
Kingston General Hospital Staff**

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**Note:** This learning guide contains information current at the time of distribution. Policies and procedures are frequently revised. Please refer to related policies and procedures contained on the Nursing Policy web page for ongoing current information.

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## 1.0 **PART A: SPINAL (INTRATHECAL) ANESTHESIA/ANALGESIA:**

### **Introduction**

The patient with postoperative pain traditionally has been treated with intermittent intravenous, intramuscular, subcutaneous injections, or with oral administration of opioid analgesics. The disadvantages of these methods include peaks and valleys in pain relief and increased nursing workload. As a result, the use of **neuraxial** analgesia for postoperative pain relief is a widely accepted treatment modality.

What does **NEURAXIAL** mean?

Neuraxial anesthesia refers to the administration of local anesthetics around nerves of the **central nervous system** via **epidural**, **paravertebral**, or **intrathecal (spinal)** routes.

Spinal anesthesia is used frequently for abdominal, genitourinary, orthopaedic, vascular, obstetrical and gynecologic surgery. To provide prolonged analgesia after spinal surgery, an opioid analgesia can be given intrathecally at the same time as the local anesthetic.

### **Learning Guide**

This learning guide has been prepared to assist nurses to care for patients who have received **intrathecal** (spinal) anesthesia/analgesia. Skilled nursing assessment is essential to care for these patients postoperatively.

## 2.0 **Authorization**

Care of the patient following spinal anesthesia/analgesia is an Advanced Competency. Authorized nurses (RN and RPN) may care for and monitor patients after they have received a perioperative spinal opioid analgesic and/or local anesthetic agent.

### **Authorization Process**

The authorization process for the care and monitoring of patients that have received spinal opioid analgesic and/or local anesthetic agent include:

- Review of the Learning Guide, Care of the Patient Following Spinal (Intrathecal) Anesthesia/Analgesia;
- Review of related policies and procedures in the Nursing Policy and Procedure Manual;

- Successful completion of the written test (80% or greater)

## **2.1 Expected Competencies for the Learner**

Following the review of this learning guide and successful completion of the authorization process, the nurse will be able to care for patients who have received spinal (intrathecal) anesthesia/analgesia as follows:

1. Assess patient status and responses at appropriate intervals.
2. Ensure patient safety and comfort throughout the postoperative period.
3. Recognize, respond to, and communicate assessment of complications to charge nurse and/or APMS.
4. Identify patient care needs.
5. Update the plan of care based on the information gathered in assessment/monitoring of patients receiving or who have received spinal (Intrathecal) anesthesia/analgesia.
6. Implement the nursing plan of care for the patients.
7. Document monitoring data, care provided and response to care accurately and thoroughly.
8. Evaluate the outcomes of the nursing care provided for the patients.
9. Communicate relevant patient information to other members of the health care team.

### 3.0 **Acute Pain Management Service (APMS)**

The APMS is an interdisciplinary team that is consulted to establish pain management interventions for patients undergoing surgical procedures. The APMS team consists of two Nurse Practitioners, a small rotating group of anesthesiologists, and a clinical pharmacist.

The APMS staff will follow up on all patients who have received spinal anesthesia only when there is the addition of **Spinal Epimorph®** (spinal analgesia).

#### **What is Spinal Epimorph®?**

**Epimorph® is a preservative-free opioid made specifically for intrathecal injection.**

It is the anesthesiologist's responsibility to complete a **Neuraxial Analgesia Surgical Order Set** (see Appendix B) to indicate if the patient received an intrathecal opioid intraoperatively (usually Epimorph®).

The anesthesiologist will also indicate whether APMS or the surgical service is responsible for ordering medications for pain management.



**REMEMBER**

**If APMS is responsible for ordering pain medications:**

**\*\*\*Give only those analgesics, anti-emetics, antihistamines, neuropathic pain agent and sedatives authorized by the APMS\*\*\***

(Transcribe on MAR as APMS prescribing restrictions)

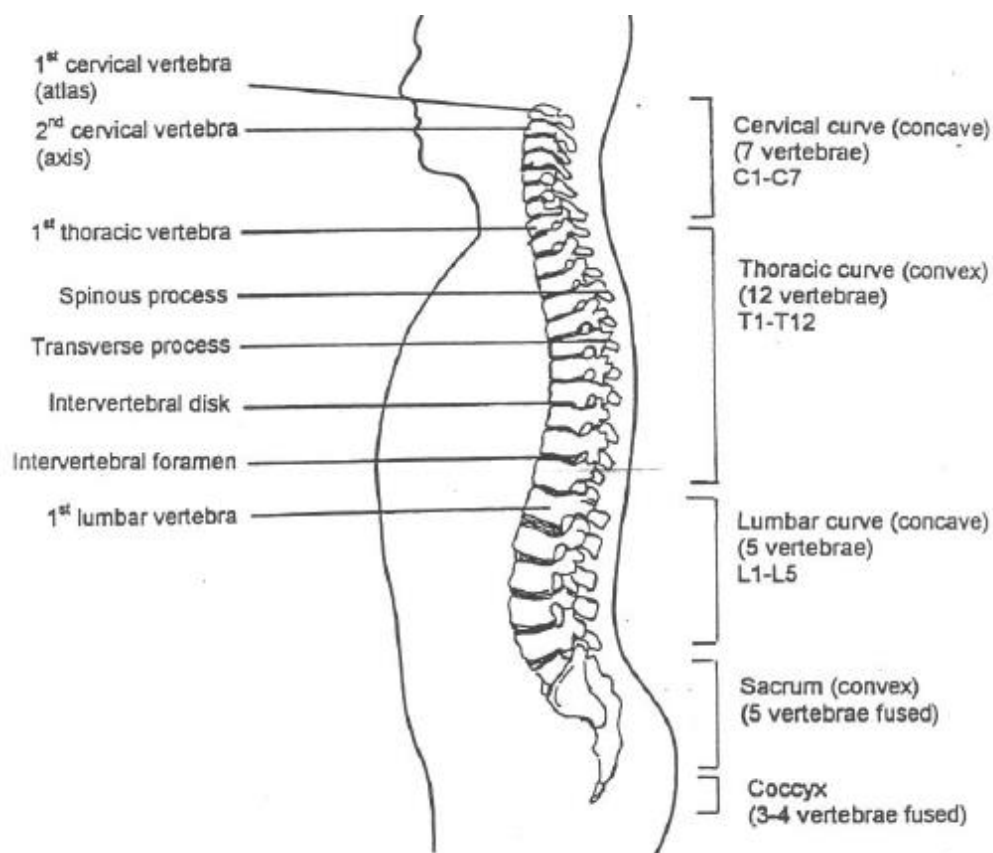
## 4.0 Review of related anatomy and physiology

To clearly understand the use of spinal anesthesia/analgesia, it is helpful to review the anatomy and physiology of the spinal column and of pain transmission.

### 4.1 Vertebral Column

The vertebral column is composed of the bony outer structures that house and protect the spinal cord. It consists of 33 vertebrae:

Cervical:	7	Lumbar:	5	Coccygeal:	3-4
Thoracic:	12	Sacral:	5		



**Figure 1:** The Vertebral Column

## 4.2 **Spinal Meninges**

Three layers of membranous coverings known as **meninges** surround the spinal cord:

- Pia mater:
  - Innermost layer
  - Adheres directly to the spinal cord
  - Contains many blood vessels to supply the spinal cord
- Arachnoid:
  - Middle transparent layer;
  - Separated from the pia mater by the CSF-filled subarachnoid space.
- Dura mater:
  - Strong, tough outer layer;
  - Consists of dense, fibrous connective tissue.

## 4.3 **Subarachnoid Space**

The subarachnoid space is located between the arachnoid and the pia mater. This space contains the cerebrospinal fluid (CSF). The subarachnoid space is also referred to as the spinal or intrathecal space. In general, the dose of subarachnoid analgesia necessary to achieve pain relief is only one tenth (1/10th) of the dose used in the epidural space.

Complications with intrathecal analgesia will occur with smaller drug dosages, and much sooner than complications occurring after epidural infusion because of medication spread in the cerebral spinal fluid (CSF).

## 4.4 **Spinal Nerve Distribution**

There are 31 pairs (eight cervical, twelve thoracic, five lumbar, five sacral and one coccygeal) of spinal nerves, containing motor, sensory, and sympathetic nerve fibres that traverse from the spinal canal through the intervertebral foramina.

Skin segments innervated by specific sensory roots are called dermatomes. Dermatomes are significant in determining the level of sensory deficit by nurse post spinal analgesia/anesthesia.

## 5.0 **Local Anesthetic Agents: Mechanism of Action**

Local anesthetic agents administered neuraxially via intrathecal injection block impulse conduction within the spinal cord itself. Spinal local anesthetics do this by blocking sodium channels on nerve cells and preventing the transmission of painful stimuli to the brain. The



immediate availability of spinal cord structures and the presence of CSF allow doses of spinal local anesthetics to be substantially less than epidural or paravertebral doses.

Frequently a combination of opioid and local anesthetic is used, reducing the total amount of each agent required to relieve pain. Using less drug decreases the side effects associated with each of these agents. The most commonly used local anesthetic agents are lidocaine and bupivacaine (Marcaine). A combination of bupivacaine with hydromorphone or fentanyl is standard at KGH.

## 6.0 **Balanced Analgesia**

Balanced analgesia is a term used to describe the use of a combination of medications to produce an analgesia affect. Balanced analgesia is also known as Multimodal Therapy. The goal of balanced analgesia is to use smaller amounts of analgesics to produce pain relief without creating limiting side effects. There are generally four different types of analgesics used by APMS/anesthesiology to achieve this effect.

- **Non-steroidal anti-inflammatory drugs (NSAIDs)** include ketoprofen, ibuprofen, indomethacin and naprosyn;
- **Acetaminophen** is used routinely with an NSAID, can reduce opioid requirements by up to thirty percent;
- **Opioid analgesics** are used for their central effect on pain transmission. These agents may be administered alone for neuraxial analgesia or in combination with a local anesthetic;
- **Local anesthetics** are used for their ability to block pain impulses both in the spinal cord and in nerve roots. These agents may be administered alone for neuraxial analgesia or in combination with an opioid analgesic.

Although smaller dosages of these medications may be used in balanced analgesia, it is still important to assess carefully for known medication side effects.

## 7.0 **Naloxone Administration**

Naloxone is a short acting opioid antagonist. It is given intravenously by the RN to reverse opioid-induced respiratory depression.

For all patients who have received an intrathecal opioid (i.e Fentanyl or Morphine) for the duration of the monitoring period:

1. A vial of Naloxone 0.4 mg IV, a 10 mL vial of normal saline, and a 10 mL syringe/needle will be immediately available during, and for 24 hours after, the administration of intrathecal analgesia/anesthesia including when the patient is transported off the nursing unit.
2. The RPN must seek collaboration with the RN if Naloxone is required for respiratory depression as the patient is no longer stable or predictable.

## **8.0 Part B: Care of the patient following spinal anesthesia/analgesia**

### **Introduction**

Opioids and local anesthetics administered intrathecally (spinal) spread within the CSF in close proximity to the spinal cord. Intrathecal dosing is 1/10 that of epidural dosing. Local anesthetics such as bupivacaine, may be used intrathecally to provide sensory and motor blockade for operative procedures instead of or in addition to general anesthetics. The anesthesiologist or resident determines and administers the dose of local anesthetic prior to surgery. The duration of effect is dose dependent. Refer to table 1.3 for a detailed view of the side effects of spinal local anesthetic administration.

Spinal opioid solubility affects drug duration, onset and spread of effect. The more lipid soluble opioids (fentanyl, meperidine) have a quicker onset of action but a shorter duration of effect (approximately 5 hours). Morphine and hydromorphone are more water soluble and thus are slower to act but remain in the CSF for a longer period of time (approximately 24 hours). The anesthesiologist/resident may administer a small dose of opioid intrathecally to provide analgesia for 8-20 hours post-operatively. Refer to table 1.2 on page 13 for a detailed view of the side effects of intrathecal opioid administration.

## **8.1 Contraindications for the Use of Spinal Anesthesia**

Spinal Anesthesia is contraindicated in the following situations:

- Presence of local and systemic infection
- Inadequate monitoring capability and/or lack of resuscitative equipment and medications
- Coagulopathy or anti-coagulant therapy
- History of adverse reaction to proposed agent
- Patient refusal

Other relative contraindications include:

- Increased intracranial pressure
- Skeletal or spinal abnormalities
- Prior laminectomy with opening of the dura

### 9.0 Side Effects of Spinal Opioid Administration

Side Effects	Etiology	Nursing Assessment	Prevention/Therapy
<b>Pruritus</b>	<ul style="list-style-type: none"> <li>Tends to develop on face, trunk, and/or upper extremities</li> <li>Not an allergy</li> <li>No rash or redness</li> <li>May be related to histamine release</li> </ul>	<ul style="list-style-type: none"> <li>Observe for itching.</li> </ul>	<ul style="list-style-type: none"> <li>Administer diphenhydramine (Benadryl) as ordered.</li> <li>Administer small doses of naloxone, as ordered.</li> <li>Administer an antipruritic steroid-free lotion, as ordered.</li> </ul>
<b>Urinary Retention</b>	<ul style="list-style-type: none"> <li>Opioid effect on spinal cord and spinal nerves innervating the bladder.</li> <li>Tends to occur more frequently in men than in women</li> <li>More common when opioids are administered in the lumbar area</li> </ul>	<ul style="list-style-type: none"> <li>Monitor inputs and outputs.</li> <li>Palpate the abdomen prn for distended bladder.</li> <li>Observe for symptoms of discomfort i.e., frequency, urgency.</li> </ul>	<ul style="list-style-type: none"> <li>Perform intermittent catheterization as ordered.</li> <li>Administer small doses of naloxone as ordered.</li> </ul>
<b>Nausea &amp; Vomiting</b>	<ul style="list-style-type: none"> <li>Due to vascular absorption of opioid</li> <li>Latent effects may occur 6-10h after Morphine d/t drug circulating in CSF around vomiting centre in brain</li> </ul>	<ul style="list-style-type: none"> <li>Monitor for nausea and vomiting.</li> </ul>	<ul style="list-style-type: none"> <li>Offer support measures.</li> <li>Administer antiemetic, as ordered.</li> <li>Administer naloxone in a low dose, as ordered to relieve nausea without loss of analgesia.</li> </ul>
<b>Respiratory Depression</b> (Initial presentation is often a decreasing level of consciousness. Depth of respiration may first become shallower with little change in rate)	<ul style="list-style-type: none"> <li>Most serious, but least frequent side effect (&lt; 1%)</li> <li><b>EARLY:</b> within 1h after injection due to vascular absorption of opioid via epidural veins</li> <li><b>LATE:</b> with morphine only. Slow absorption allows morphine to float freely in CSF, reaching the respiratory centre of brain 6-24h after injection</li> <li>More likely to occur if:               <ul style="list-style-type: none"> <li>large doses are given;</li> <li>age &gt; 70;</li> <li>history of impaired respiratory function;</li> <li>concomitant administration of parenteral opioids, sedatives or antiemetics;</li> <li>residual effects of drugs given during surgery;</li> <li>patient lying flat; and obesity</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Monitor respiratory rate and depth q 4 h and PRN for 24 h</li> <li>Monitor level of sedation and pain q 4 h</li> <li>Monitor oxygen saturation prn</li> <li>Assess for opioid toxicity (&lt; 1%, rare)               <ul style="list-style-type: none"> <li>Mental clouding</li> <li>Pinpoint pupillary constriction</li> <li>Coma</li> <li>Respiratory depression</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Encourage deep breathing.</li> <li>Elevate head of bed 30 degrees</li> <li>Administer <b>NO</b> other opioids, sedatives, antiemetics, without specific orders from anesthesiologist.</li> <li>Encourage early, assisted ambulation.</li> <li>Notify Anesthesia if RR &lt; 10 and/or ↓ LOS</li> <li>Administer oxygen as ordered.</li> <li>Administer naloxone IV as ordered (RN)</li> <li>Patient must have IV access for 24 hours following therapy with epimorph.</li> <li>If patient is apneic, insert oral airway,</li> <li>Ventilate with ambu bag, call Code Blue</li> </ul>

### **10.0 Side Effects of Intrathecal (Spinal) Local Anesthetic Agents**

<b>Side Effects</b>	<b>Etiology</b>	<b>Nursing Assessment</b>	<b>Prevention/Therapy</b>
<b>Hypotension</b>	<ul style="list-style-type: none"> <li>• Sympathetic nerve blockage and subsequent vasodilation</li> <li>• Dose dependent, increased risk with higher doses</li> <li>• Accentuated by hypovolemia or blood loss</li> </ul>	<ul style="list-style-type: none"> <li>• Assess according to procedural orders</li> </ul>	<ul style="list-style-type: none"> <li>• Prior to administration of local anesthetic bolus, place patient in supine position and maintain x 10min.</li> <li>• Elevate legs.</li> <li>• Team to administer IV fluid and ephedrine IV as ordered</li> <li>• Notify anesthesiologist.</li> </ul>
<b>Motor and Sensory Loss</b>	<ul style="list-style-type: none"> <li>• Motor &amp; sensory nerve blockade must be completely receded when RPN caring for patient</li> <li>• Dose/concentration dependent</li> </ul>	<ul style="list-style-type: none"> <li>• Nurse to assess level of sensory block, using ice, noting dermatome level where temperature sensation is lost. Assess q1h until return of full motor function.</li> <li>• Assess for evidence of motor block, by using the motor strength impairment scale to check patient's ability to flex the feet and knees.</li> <li>• Check ankle flexion and extension or ability to move toes in orthopedic patients when large casts or immobilization dressings are preventing bending at knees</li> </ul>	<ul style="list-style-type: none"> <li>• Protect patient until return of sensory &amp; motor function.</li> </ul>
<b>Urinary Retention</b>	<ul style="list-style-type: none"> <li>• Motor/sensory block of nerve fibres innervating the bladder</li> </ul>	<ul style="list-style-type: none"> <li>• Assess abdomen for distention and discomfort prn.</li> <li>• Monitor intake and output.</li> </ul>	<ul style="list-style-type: none"> <li>• Perform intermittent catheterizations as ordered.</li> <li>• Administer naloxone as ordered.</li> </ul>
<b>Nausea and Vomiting</b>	<ul style="list-style-type: none"> <li>• Usually will occur only if the patient also experiences hypotension</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor/question patient about nausea and vomiting.</li> </ul>	<ul style="list-style-type: none"> <li>• Antiemetics may be ordered (e.g., haloperidol, dimenhydrinate, droperidol, metoclopramide, prochlorperazine, ondansetron).</li> </ul>

### **11.0 Complications of Intrathecal (Spinal) Local Anesthetic**

<b>Complication</b>	<b>Etiology</b>	<b>Nursing Assessment</b>	<b>Prevention/Therapy</b>
<b>Dural Puncture (Spinal Headache)</b>	<ul style="list-style-type: none"> <li>Loss of CSF by accidental puncture of the dura. This often leads to a high incidence of post spinal headache.</li> </ul>	<ul style="list-style-type: none"> <li>Dural puncture is characterized by a severe headache which is exacerbated by sitting upright. Other associated symptoms may include photophobia, nausea and vomiting.</li> </ul>	<ul style="list-style-type: none"> <li>Notify physician</li> <li>Administer IV fluids as ordered</li> <li>Maintain bedrest with head of bed flat</li> <li>Administer analgesics for headache</li> <li>If headache is severe and unresponsive to first line management, an epidural blood patch may be considered to stop the leakage of CSF</li> </ul>
<b>Epidural Hematoma (Cauda Equina Syndrome – CES)</b>	<ul style="list-style-type: none"> <li>Pressure on the nerve plexus leading to Cauda equina syndrome (CES)</li> </ul>	<ul style="list-style-type: none"> <li>Observe patient for signs and symptoms of CES which include: progressive weakness/paralysis of lower extremities, perineal numbness, and incontinence (patient usually does not realize they have been incontinent).</li> </ul>	<ul style="list-style-type: none"> <li>Transfer care to RN</li> <li>RN to perform motor and sensory assessments as indicated</li> <li>Perform neurovascular checks as ordered and/or are indicated</li> <li>Notify physician of any abnormal findings</li> <li>Prepare patient for MRI/CT scan to localize hematoma</li> <li>Prepare for emergent surgery to relieve pressure and restore blood flow</li> </ul>

## **SPINAL ANALGESIA/ANESTHESIA PATIENT CARE AND MONITORING**

### **12.0 Nursing Actions Refer to Nursing Policy and N-103**

<b>For the first <u>24 hours</u> post intrathecal analgesia/anesthetic assess:</b>	
Sensory and Motor function	Q 1h until return of full motor and sensory function (or pre procedure/surgery motor and sensory function)
Vital Signs (BP, HR, RESP, TEMP, PAIN)	Q4 hours and PRN
Level of Sedation (Pasero)  <b>OR</b>  Richmond Agitation Sedation Scale (RASS)	Q4 hours and PRN
1. Maintain the head of the bed elevated 30 degrees.	
2. Maintain IV access.	
3. A vial of Naloxone 0.4 mg IV, a 10 mL vial of normal saline, and a 10 mL syringe/needle will be immediately available during, and for 24 hours after, the administration of intrathecal analgesic/anesthesia including patient absences from the nursing unit.	
* Note RN administers Naloxone *	

### **13.0 Reporting and Recording**

1. Notify Anesthesiology STAT if you observe:
  - Respiratory rate <10 breaths per minute or dyspnea;
  - Systolic blood pressure <90mm Hg;
  - Heart rate <50 beats per minute;
  - Convulsions;
  - Sedation score of 3;
  - Central nervous system changes such as numbness on tongue or lips, vertigo, tinnitus, feeling restless or jittery, difficulty in focusing, slurred speech.
2. Notify Anesthesiology if you observe:
  - Inadequate pain relief or new onset of pain in the back, or complaints of headache or backache that are not relieved with prescribed analgesia;
  - Temperature greater than 38.5°C;
  - Side effects that are not alleviated with nursing interventions; or
3. Document on the APMS analgesia flowsheet:
  - Date and time;
  - Respiratory effort and rate;
  - Patient's subjective description of pain (0-10 at rest and with activity);
  - Level of sedation
  - Sensory and motor block/function
4. Document in the progress note:
  - Alterations in respiratory status;
  - Evidence of side effects/complication and actions taken to manage those;
  - Evaluation of patient response to interventions; and
  - Communication with Anesthesiology and collaborating RN.
5. Document on the unit-specific flowsheet:
  - Vital signs



**14.0 Patient Teaching**

1. Provide details about how you will do a dermatome assessment and to expect dermatome assessments q1 hour until return of baseline function.
2. Inform patient head of bed must remain at 30degree for 24 hours.
3. Advise patient not to mobilize without assistance until motor function had returned and is adequate as assessed by the nurse.

**15.0      PART C:    Assessment Tools**
**Pasero Opioid Induced Sedation Scale (POSS)**

<b>S</b>	Sleep, easy to arouse	Acceptable; no action necessary; may increase opioid dose if needed
<b>1</b>	Awake and alert	Acceptable; no action necessary; may increase opioid dose if needed
<b>2</b>	Slightly drowsy, easily aroused	Acceptable; no action necessary; may increase opioid dose if needed
<b>3</b>	Frequently drowsy, arousable, drifts off to sleep during conversation	Unacceptable; monitor respiratory status and sedation level closely until sedation level is stable at less than 3 and respiratory status is satisfactory; decrease opioid dose 25% to 50% or notify prescriber or anesthesiologist for orders; consider administering a non - sedating, opioid - sparing nonopioid, such as acetaminophen or an NSAID, if not contraindicated.
<b>4</b>	Somnolent, minimal or no response to verbal or physical stimulation	Unacceptable; stop opioid; consider administering naloxone; notify prescriber or anesthesiologist; monitor respiratory status and sedation level closely until sedation level is stable at less than 3 and respiratory status is satisfactory.

## 16.0 Appendix A



KINGSTON  
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HOSPITAL

Review Due Date: 2015 November

### PATIENT CARE ORDERS

Please use black ink ballpoint pen only and press firmly to make copy

Weight (kg)	Known Adverse Reactions or Intolerances		TRANSCRIPTION
	DRUG	<input type="checkbox"/> No <input type="checkbox"/> Yes (list)	
	FOOD	<input type="checkbox"/> No <input type="checkbox"/> Yes (list)	
	LATEX	<input type="checkbox"/> No <input type="checkbox"/> Yes	
<b>Neuraxial Analgesia Surgical Order Set</b>			
<b>Post Procedure</b>			
<b>Neuraxial Medication</b> <input type="checkbox"/> Intrathecal (spinal) opioid and dose given: _____ Date (YYYY/MM/DD): _____ and Time (HHMM): _____ <b>OR</b> <input type="checkbox"/> Epidural opioid and dose given: _____ Date (YYYY/MM/DD): _____ and Time (HHMM): _____ <ul style="list-style-type: none"> <li>• Patient monitoring as per Nursing Policy N-103</li> <li>• Maintain IV access for 12 hours after intrathecal opioids</li> </ul>			
<b>Pain Management</b> <input type="checkbox"/> Acute Pain Management Service (APMS) to order analgesics (Please see APMS PCA-IV Orders; APMS prescribing restrictions apply) <b>OR</b> <input type="checkbox"/> Surgical service to order analgesics (Please consult with surgical service to ensure they are aware)			
<div style="display: flex; justify-content: space-between;"> <div>Pharmacy Use Only:</div> <div>Reviewed by: _____</div> </div> <div style="display: flex; justify-content: space-between;"> <div>Entered by: _____</div> <div>Checked by: _____</div> </div>			
Prescriber Printed Name	Designation	Signature	Date (YYYY/MM/DD) Time (HHMM):

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## 17.0 AUTHORIZATION TEST FOR CARE OF THE PATIENT FOLLOWING SPINAL (INTRATHECAL) ANESTHESIA/ANALGESIA

\*Please note: You may need to consult KGH policy and procedure and Medical Directives to complete test\*

Name: \_\_\_\_\_ Unit: \_\_\_\_\_ Date: \_\_\_\_\_

### Multiple Choice

Please circle the most appropriate answer for each question below.

1. The medication administered by the **RN** to reverse opioid-induced respiratory depression is:
  - a. atropine
  - b. naloxone
  - c. ephedrine
  - d. fentanyl
  
2. For the first 24 hours following spinal (intrathecal) anesthesia/analgesia, the nurse **MUST**:
  1. monitor the level of sedation and pain q4 h
  2. keep the head of the bed elevated at 30 degrees
  3. monitor respiratory rate q4 h and prn
  4. all of the above
  - a. 1 & 3
  - b. 3 only
  - c. 2 & 3
  - d. 4
  
3. Until the motor and sensory block have fully receded, monitor sensory and motor block level:
  - a. q4 h for 24 hours
  - b. q1 h until block has receded
  - c. q1 h for 3 hours
  
4. Advantages of opioid spinal (intrathecal) analgesia compared to IM/IV analgesia include:
  - a. less opioid required
  - b. longer duration
  - c. minimal sedation
  - d. all of the above
  
5. Unlike epidural analgesia, intrathecal analgesia involves the placement of the agent:
  - a. directly into the subarachnoid space
  - b. between the dura mater and the ligamentum flavum

- c. directly into the spinal cord
  - d. into an epidural vein
6. Potential side effects following the administration of intrathecal analgesia include:
- a. urinary retention, respiratory depression, and hypotension
  - b. bradycardia, motor loss, and nausea/vomiting
  - c. pruritis, urinary retention, respiratory depression, and nausea/vomiting
  - d. all of the above
7. The patient who has received intrathecal anesthesia will need to be monitored for which complications:
- a. hypotension, motor loss and urinary retention
  - b. nausea/vomiting and pruritis
  - c. respiratory depression and agitation
8. Epimorph (morphine administered intrathecally) can provide analgesia for up to:
- a. 6 hours
  - b. 24 hours
  - c. 10 hours
  - d. 8 hours
9. In addition to intrathecal analgesia, what other balanced (co-analgesic) analgesia medications might be prescribed by APMS:
- a. ketoprofen
  - b. ativan
  - c. morphine
  - d. demerol
10. It is unnecessary to assess for the presence of motor block in patients who have or are receiving a local anesthetic agent prior to ambulation:
- a. true
  - b. false
11. Notify Acute Pain Management Services (APMS) STAT if you observe:
- a. respiratory rate <10 breaths/minute
  - b. systolic blood pressure <90 mmHg
  - c. heart rate < 50 beats/minute
  - d. convulsions
  - e. sedation score=5
  - f. new onset of sensory or motor block 3 dermatomes above the desired upper level and the patient is compromised
  - g. all of the above

12. Once motor and sensory block have fully receded:

- a. discontinue q1 h motor and sensory block checks
- b. document date and time when motor and sensory block have fully receded on Analgesia Flow Sheet
- c. continue to monitor vital signs (including pain) and level of sedation for 24 hours
- d. all of the above

13. The Medical Directive for Discharge from the Post-Anesthetic Care Unit (PACU) states:

- a. Bromage score of 3, and regression of sensory block lower than T10
- b. Bromage score between 0-2, and sensory block lower than T8
- c. Bromage score of 0-2, and sensory block lower than T10

It is 1600 and you have just admitted two post-operative hip replacement patients. Patient A received 100mcg of epimorph intrathecally at 1300 in addition to spinal anesthesia and patient B received spinal anesthesia only at 1230. Both patients are comfortable, report pain scores of 2/10 at rest and can demonstrate a sensory block to ice from T12-L3 (Questions 14 & 15 pertain to this scenario):

14. Patient A will likely have analgesia for longer than patient B because intrathecal epimorph can provide analgesia for up to 24 hours

- a. true
- b. false

15. Patient A will need to be monitored for which serious complication of intrathecal opioids for 24 hours:

- a. pruritis
- b. nausea
- c. respiratory depression
- d. post-dural puncture headache

16. The first signs of respiratory depression may be an increasing level of sedation and a decreasing depth of respiration.

- a. true
- b. false

17. Prior to assigning a patient to an RPN who has received intrathecal analgesia/anesthesia, what three things must be considered?

- a. client
- b. nurse
- c. environment

d. all of the above

**Answer Sheet for Care of Patient Following Spinal (intrathecal) Anesthesia/Analgesia**

Name \_\_\_\_\_ Date \_\_\_\_\_

- |     |   |   |   |   |   |   |   |
|-----|---|---|---|---|---|---|---|
| 1.  | a |   | b |   | c |   | d |
| 2.  | a |   | b |   | c |   | d |
| 3.  | a |   | b |   | c |   |   |
| 4.  | a |   | b |   | c |   | d |
| 5.  | a |   | b |   | c |   | d |
| 6.  | a |   | b |   | c |   | d |
| 7.  | a |   | b |   | c |   |   |
| 8.  | a |   | b |   | c |   | d |
| 9.  | a |   | b |   | c |   | d |
| 10. | a |   | b |   |   |   |   |
| 11. | a | b | c | d | e | f | g |
| 12. | a |   | b |   | c |   | d |
| 13. | a |   | b |   | c |   |   |
| 14. | a |   | b |   |   |   |   |
| 15. | a |   | b |   | c |   | d |
| 16. | a |   | b |   |   |   |   |
| 17. | a |   | b |   | c |   | d |

## 18.0 **PART E: CONCLUSION**

### 1.0 **REFERENCES**

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## 19.0 EVALUATION OF LEARNING GUIDE

Your feedback and comments are most appreciated. Thank you for your time in responding to this questionnaire. It will help us in planning/revising learning materials.

Please circle appropriate response.

		Strongly Agree				Strongly disagree
1.	The content was clear and easy to understand.	1	2	3	4	5
	Comments:					
2.	The content was relevant.	1	2	3	4	5
	Comments:					
3.	My learning needs were met.	1	2	3	4	5
	Comments:					
4.	This guide will help me to meet the knowledge/ Skill requirements relating to the care of patients receiving epidural analgesia/anesthesia and paravertebral nerve blocks.	1	2	3	4	5
	Comments:					

### Additional comments/suggestions:

Please return the completed evaluation to your Clinical Educator

Thank You