TITLE
MANAGEMENT OF PERIPHERAL NERVE BLOCK (PNB) INFUSIONS - ADULT

OBJECTIVES
- To standardize medication administration by means of peripheral nerve block (PNB) infusion for acute pain management in adult patients being cared for in a hospital setting.
- To outline safe care and monitoring requirements of patients following the administration of a PNB infusion for analgesia.

APPLICABILITY
Compliance with this document is required by all Alberta Health Services employees, members of the medical and midwifery staffs, students, volunteers, and other persons acting on behalf of Alberta Health Services (including contracted service providers as necessary).

ELEMENTS
1. Points of Emphasis
   1.1 The modes of delivery for the PNB infusion may vary by site (e.g., continuous infusion only, continuous infusion plus bolus, intermittent bolus only, intermittent bolus plus bolus dose, continuous infusion plus intermittent bolus, bolus dose only).
   1.2 An order from an authorized prescriber with the Acute Pain Service (APS) or Anesthesia, or the Zone-delegated most responsible health practitioner (MRHP) (e.g., Surgeon), is required for:
a) PNB infusion initiation, dosage, parameters for dose adjustments, discontinuation of infusion, and peripheral nerve catheter removal; and
b) all analgesics, sedatives, antipruritics, and antiemetics while the patient is receiving the PNB infusion unless designated to another health practitioner group.

1.3 The authorized prescriber with APS or Anesthesia, or a Zone-delegated MRHP, shall be consulted prior to a patient with a PNB catheter receiving magnetic resonance imaging (MRI) to confirm the type of catheter.
   a) A patient with a PNB catheter containing metal (a wire threaded through the length of the catheter) shall not have an MRI while the catheter is in place.

1.4 The initial dose of local anesthetic injected and/or infused into the PNB catheter shall be administered by an Anesthesiologist or Surgeon.

1.5 An independent double-check (refer to the AHS Independent Double-Check Guideline) shall be performed when:
   a) initiating programming of the PNB infusion;
   b) administering a clinician bolus;
   c) adjusting pump parameters (where applicable); and
   d) changing PNB solution bags (where applicable).

1.6 Independent double-checks may be performed for any change in pump settings (i.e., dose adjustments), or as determined by site processes or the health care professional (this is called a “second check” in Connect Care).
   a) The health care professional shall request a co-sign to document in Connect Care from another health care professional who is competent to administer PNB infusions.

2. Health Care Professional Requirements

2.1 Health care professionals performing activities related to the administration of PNB infusions shall follow regulatory and AHS organizational requirements for education and training. Zone requirements and/or educational resources are available on Insite.

3. Infusion Management Considerations

3.1 When managing a PNB infusion for analgesia, the health care professional shall:
   a) assess each patient for pain using a valid pain assessment tool (refer to Appendix A: Valid Pain Assessment Tools [Self Report –
Unidimensional). A pain management plan and/or functional pain goal(s) should be established with the patient;

b) verify PNB infusion pump settings and medications against the medication orders when assuming care of the patient at the beginning of the shift and with all transitions in care as per the AHS Invasive Infusion Line and Tubing Verification Policy;

c) deliver PNB infusions via the drug library of a SMART (Safer Medication Administration through Technology) infusion pump;

d) use strict aseptic technique with set-up and during all contact with local anesthetic solution and tubing (e.g., replacing the nerve block solution, filter, and/or tubing);

e) ensure an intravenous cannula is maintained for the duration of the infusion; and

f) confirm there is an adequate amount of local anesthetic solution in the current medication bag to maintain the infusion at all times. Change the PNB solution bag as directed by Pharmacy (i.e., stability of product), when the bag runs out, or every seven (7) days.

3.2 PNB infusion tubing and the 0.2 micron filter (unless already inline) may remain in place for the duration of the therapy for up to seven (7) days.

3.3 If there is a downstream occlusion alarm, replace with a new primed 0.2 micron (particle) filter (or inline filter if in place).

3.4 Prior to discontinuation of a PNB infusion or removal of a PNB catheter, the health care professional shall:

a) obtain an order from an authorized prescriber with APS or Anesthesia, or the Zone-delegated MRHP; and

b) verify that an alternate analgesic regimen is in place.

3.5 If a patient experiences a clinical adverse event that could be attributed to the PNB infusion, the pump shall be sent to Clinical Engineering for investigation.

4. Infusion Preparation, Equipment, and Set-Up

4.1 Collaborate with Pharmacy as required to ensure PNB medication solution availability (e.g., provide updates on rate, usage).

4.2 Equipment:

a) local anesthetic solution bag labelled with the correct medication, concentration, and route;
(i) Only preservative-free solutions may be used.

b) SMART infusion pump (with drug library designated for PNB infusions);

c) SMART infusion pump access key;

(i) lock box, if used at site;

d) manufacturer-recommended PNB infusion tubing with no injection ports; and

e) 0.2 micron filter (unless already inline).

4.3 For set-up, the health care professional shall:

a) follow the manufacturer’s instructions for priming the PNB infusion tubing;

b) connect the 0.2 micron filter to the distal end (unless already inline) of the PNB infusion tubing in preparation for connection to the hub of the PNB catheter;

c) program the SMART infusion pump with the designated library for the PNB infusion according to the medication orders;

d) ensure that the PNB catheter is securely taped to the patient and an occlusive dressing is covering the catheter insertion site;

e) connect the PNB tubing and filter to the PNB catheter connector;

f) clearly label the PNB infusion tubing as nerve block in accordance with the AHS Invasive Infusion Line and Tubing Verification Policy; and

g) close and lock the door to the PNB infusion pump lockbox. Do not start the PNB infusion until Section 5 is completed.

5. Infusion Initiation

5.1 The health care professional shall confirm the presence of complete medication orders from an authorized prescriber with APS or Anesthesia, or the Zone-delegated MRHP, on the patient’s health record (refer to the AHS Medication Orders Policy Suite).

5.2 The authorized prescriber with APS or Anesthesia, or the Zone-delegated MRHP, shall include the following in the medication orders:

a) medication;

b) concentration;

c) route;
d) pump settings;
e) monitoring requirements;
f) supplemental analgesics; and
g) naloxone, if the patient is on concurrent opioids.

5.3 In accordance with the AHS Medication Administration Policy, the health care professional shall confirm that informed consent (express or implied) for the treatment/procedure (including medications to be administered) was obtained from the patient, unless a valid exception to informed consent applies, as per the AHS Consent to Treatment/Procedure(s) Policy Suite.

a) If it is determined that the patient lacks capacity to consent, the authority of an alternate decision-maker shall be recognized in accordance with the AHS Consent to Treatment/Procedure(s): Adults with Impaired Capacity and Adults who Lack Capacity Procedure.

5.4 Prior to initiation, the health care professional shall:

a) complete the baseline assessment, including but not limited to:

(i) pain score (refer to Appendix A: Valid Pain Assessment Tools [Self Report – Unidimensional]);
(ii) respiratory rate;
(iii) blood pressure;
(iv) pulse;
(v) oxygen saturation level;
(vi) sensory level;
(vii) motor power assessment (e.g., extension, flexion, weak, absent, unable to assess); and
(viii) PNB insertion site and dressing assessment.

b) provide patient education on:

(i) the patient-controlled peripheral nerve block infusion (PCNBI) bolus button and demonstrate (if applicable);

- Confirm the patient understands and has the ability to operate the PCNBI bolus button.
(ii) potential side effects and complications, and the importance of reporting these to the health care professional (refer to Section 7);

(iii) the rationale for only the patient to use the PCNBI bolus button (and not the family);

- Only patients are to administer PCNBI boluses, as proxy administration by family and/or friends may lead to potential complications.

(iv) how to support and protect the involved site/area; and

(v) requesting supplemental analgesic if the PNB infusion is not providing adequate pain relief.

5.5 Patients are not to use cold and/or heat packs on the area(s) affected by the local anesthetic as decreased sensitivity to cold and heat may result in injury.

5.6 The health care professional shall confirm patient identity and perform an independent double-check prior to starting the PNB infusion (refer to the AHS Patient Identification Policy).

5.7 Once Section 5 has been completed, the health care professional may start the PNB infusion.

6. Assessment, Monitoring and Maintenance

6.1 Ongoing monitoring sequence and assessment shall include pain score, respiratory rate, pulse, blood pressure, oxygen saturation level, sensory level, and motor power (if applicable). The monitoring sequence should be ordered by the authorized prescriber as follows:

a) every one (1) hour for the first four (4) hours;

b) every four (4) hours for the duration of the infusion; and

c) every four (4) hours until the PNB resolves post discontinuation.

6.2 The health care professional shall:

a) monitor and document motor power, sensation, warmth, and color, of the affected area every four (4) hours and as needed for the duration of the infusion and until the PNB resolves (post removal); and

b) reposition affected limb(s) every (2) hours until PNB resolves.

6.3 If a clinician bolus is given by the health care professional, the monitoring sequence shall be:
a) for respiratory rate, blood pressure, pulse, oxygen saturation level, and pain scores; and
   (i) every five (5) minutes for the first 20 minutes; then
   (ii) every 15 minutes for the next half an hour; then
   (iii) resume previous monitoring sequence.

b) for sensory level and motor power monitoring;
   (i) every 15 minutes for the first 45 minutes; then
   (ii) resume previous monitoring.

6.4 Monitoring frequency shall be increased as indicated by the patient’s condition, the type and amount of medication administered, or as ordered in the patient’s health record.

6.5 The health care professional shall examine and palpate the PNB insertion site at least every four (4) hours to ensure:

   a) site is free of redness, swelling, pain and/or leakage;
   b) catheter is properly secured; and
   c) PNB dressing is intact (refer to Section 11).

6.6 The health care professional shall revise the pain management plan and goals according to the patient’s response.

   a) Adjustments to the PNB infusion may be required based on patient’s response within the parameters of the PNB medication orders.

6.7 The health care professional shall protect the PNB site/area from mechanical or thermal injury:

   a) Assess pressure areas for signs of potential skin breakdown and change the patient’s position at a minimum of every two (2) hours if the patient is not ambulatory.

7. Potential Complications

7.1 The health care professional shall notify APS, Anesthesia or Zone delegated MRHP as appropriate, if any of the following signs and symptoms and/or situations related to the location of the PNB occur:

   a) decline in patient’s blood pressure from baseline such that the patient is symptomatic (e.g., for paravertebral nerve block);
b) sudden shortness of breath;

c) persistent, uncontrolled moderate to severe pain despite making appropriate adjustments to pump settings and administering supplemental analgesic(s) as ordered;

d) potential local anesthetic systemic toxicity (refer to Appendix B)

e) changes in the color, warmth, sensation or movement of the affected area;

f) sensations such as tingling, numbness or motor deficit continue in the blocked limb or area persist beyond four (4) hours after stopping infusion; and

g) patient experiences any of the following concerns related to the PNB catheter such as:

(i) leakage, bleeding, pain, or tenderness at insertion site;

(ii) PNB catheter migration (in or out) – use markings on catheter as a guide;

(iii) accidental removal of the PNB catheter;

(iv) PNB catheter becomes disconnected (refer to section 8);

(v) PNB catheter site is exposed or dressing becomes loose; and/or

(vi) PNB catheter becomes occluded (pump continually alarming “occlusion”) despite troubleshooting.

8. Management of Disconnected PNB Catheter

8.1 There may be instances where the distal end of the PNB catheter becomes disconnected from the hub. If this occurs, the health care professional shall immediately:

a) stop the PNB infusion; and

b) cover the end of the exposed PNB catheter with sterile four (4) cm X four (4) cm gauze.

(i) Do not clamp or knot the PNB catheter.

8.2 The health care professional shall immediately notify APS, Anesthesia or Zone delegated MRHP and inform them about the:

a) disconnection (including time last known to be intact and time noted disconnected); and
b) time of last dose of anticoagulant(s) (if applicable). This is done for certain nerve blocks (e.g., paravertebral, lumbar plexus, or any other non-compressible PNB).

8.3 APS, Anesthesia or Zone delegated MRHP shall determine if integrity of the PNB catheter has been compromised with the disconnection and shall provide direction.

a) An order from an authorized prescriber with APS, Anesthesia or a Zone delegated MRHP is required for either discontinuation or reconnection of the PNB catheter.

8.4 Strict aseptic technique is required when managing a disconnected PNB catheter.

9. Reconnection of PNB Catheter

9.1 An order from an authorized prescriber with APS, Anesthesia or a Zone delegated MRHP is required prior to reconnecting a PNB catheter.

a) APS, Anesthesia or a Zone delegated MRHP may delegate reconnection to a health care professional with the necessary education and competency as determined by the Zone.

9.2 Equipment:

a) sterile dressing tray;
b) sterile PNB catheter compatible connector;
c) 0.2 micron filter (unless a 0.2 micron filter is already inline);
d) manufacturer recommended PNB infusion tubing with no injection ports;
e) sterile scissors, straight;
f) two percent (2%) chlorhexidine hydrochloride in 70% isopropyl alcohol solution (Alcohol is neurotoxic);
g) sterile gloves;
h) sterile four (4) cm X four (4) cm gauze;

9.3 When reconnecting a PNB catheter the health care professional shall:

a) perform hand hygiene;
b) assemble a sterile field and the equipment as identified;
c) attach 0.2 micron filter (unless a filter is already inline) to PNB manufactured recommended tubing and prime with medication solution;

d) don sterile gloves;

e) using sterile technique, cleanse the outside of the PNB catheter with two percent (2%) chlorhexidine gluconate in 70% isopropyl alcohol;

   (i) clean approximately 10 cm from the distal end of PNB catheter, or as instructed by APS, Anesthesia or Zone delegated MRHP, and allow to air dry completely;

f) wipe the PNB catheter with sterile four (4) cm x four (4) cm gauze to avoid contamination and nerve irritation if excess two percent (2%) chlorhexidine hydrochloride in 70% isopropyl alcohol solution is present;

   (i) Alcohol is neurotoxic. It is very important to allow the chlorhexidine and alcohol solution to dry completely prior to inserting the catheter into a PNB connector;

g) cut the PNB catheter, using sterile scissors, at approximately five (5) cm (center of the cleansed area) or as directed by APS, Anesthesia or Zone delegated MHRP as catheter lengths may vary. Maintain sterility of the section of catheter that is to be reconnected.

h) insert sterile end of PNB catheter into new sterile PNB connector and ensure secure connection;

i) connect PNB connector to primed sterile micron filter and tubing (unless inline) and resume PNB infusion as ordered;

j) place a clean four (4) cm x four (4) cm piece of gauze (or designated adhesive anchoring device) under the connector to prevent skin breakdown;

k) secure the PNB catheter and connector with a transparent dressing. Do not cover the PNB catheter connector area where the pump tubing is attached;

l) ensure that PNB tubing is labelled in accordance with the AHS Invasive Line and Tubing Verification Policy; and

m) document procedure and patient’s response in the health record.
10. **PNB Insertion Site Dressing**

   10.1 A PNB site dressing should only be changed by an APS/Anesthesia unless this has been delegated to a Zone MRHP or to specifically educated health care professionals in some Zone programs.

   10.2 A loose dressing can be reinforced, and an exposed PNB catheter site should be covered until the dressing is changed.

11. **PNB Catheter Removal and Discontinuation of Infusion**

11.1 **Tunneled PNB Catheter**

   a) The removal of tunneled PNB catheters is **limited** to APS, Anesthesia and/or Zone delegated MRHP. These authorized personnel should prepare the site for removal of catheter by cleansing with two percent (2%) chlorhexidine gluconate and 70% isopropyl alcohol starting at the insertion site using:

      (i) circular motion and moving outwards; or

      (ii) continuous back-and-forth friction motion moving horizontally across the center of the treatment area to the periphery and repeating the motion over the desired area for 15 seconds. The continuous back and forth motion should be repeated over the same treatment area moving in a vertical direction for an additional 15 seconds for a total application time of 30 seconds.

   b) Ensure cleansed area is allowed time to air dry.

11.2 **Non-Tunneled PNB Catheter**

   a) If the PNB catheter or stump amputation catheter is surgically placed, it may be removed by the surgical team, if Zone applicable.

   b) The health care professional shall:

      (i) confirm the presence of an order to remove a non-tunneled PNB catheter is in the patient’s health record from APS, Anesthesia or Zone delegated MRHP;

      (ii) check if the patient is on any anticoagulant or antiplatelet medications(s) and confirm the timing of the medication in relation to catheter removal specifically for with APS and/or Anesthesia or the Zone-delegated MRHP, for lumbar plexus, paravertebral, or any other non-compressible PNB; and

      (iii) use strict aseptic technique when removing the PNB catheter.
11.3 Equipment:
   a) clean gloves;
   b) soapy washcloth;
   c) sterile container for culture and sensitivity sample (if applicable);
   d) sterile scissors (if applicable);
   e) swab for culture and sensitivity specimen collection (if applicable); and
   f) sterile dressing tray and 2% chlorhexidine hydrochloride in 70% isopropyl alcohol (for tunneled catheter).

11.4 Removal of the PNB Catheter:
   a) The health care professional shall:
      (i) stop the PNB infusion;
      (ii) position the patient comfortably (e.g., affected limb[s] supported) and in a manner that provides access to the PNB catheter site;
      (iii) loosen and remove the tape and dressing at the PNB catheter insertion site; and
      (iv) examine the PNB site for any redness, exudate, blood, swelling, or bruising.
   b) If the peripheral nerve catheter is tunneled, the health care professional shall not remove the epidural catheter and notify APS, Anesthesia, or the Zone-delegated MRHP (see Section 11.1).
   c) The health care professional shall use a gentle and steady traction in either a downward or outward direction and remove the PNB catheter.
   d) If any resistance is noted, the health care professional shall:
      (i) stop, so as to not increase traction; and
      (ii) re-position the patient and attempt removal of the PNB catheter again.
      (iii) If resistance is still present, contact APS, Anesthesia, or the Zone-delegated MRHP after securing and applying a sterile dressing to the PNB site.
   e) Upon removal of the PNB catheter, the health care professional shall examine the end of the catheter for presence of a black or blue tip.
Immediately contact APS, Anesthesia or the Zone-delegated MRHP if there is no visible blue or black colour on the tip or the PNB catheter appears damaged.

11.5 If there are signs of inflammation or infection, the health care professional shall:

a) notify APS, Anesthesia, or the Zone-delegated MRHP to obtain an order for PNB culture and sensitivity testing;

b) swab the PNB catheter site; and

c) cut the tip of the PNB catheter with sterile scissors and place the distal tip that was within the patient into a sterile container.

11.6 After the PNB catheter has been removed, the health care professional shall:

a) wash the catheter removal site with soap and water, and leave the site open to air unless otherwise ordered (e.g., amputations); and

b) apply gauze dressing to the area of removal only if the site is oozing.

11.7 The health care professional shall contact APS, Anesthesia, or the Zone-delegated MRHP if new sensations such as tingling, numbness, or motor deficit in the blocked limb occur or persist after the expected duration of medication, after stopping the infusion, or post-removal of the catheter.

12. Documentation

12.1 The health care professional shall document all assessments, interventions, and responses to interventions in the patient’s health record.

12.2 Initial documentation shall include the following:

a) baseline patient assessment (refer to Section 5.4);

b) date and time of therapy initiation;

c) medication(s);

d) route;

e) pump settings;

f) PNB pump identification number;

g) PNB catheter insertion site and dressing;

h) patient teaching;

i) assessment of patient’s ability to use the bolus button (if applicable);
j) patient’s response; and
k) any other relevant assessment findings, actual or potential.

12.3 Ongoing documentation shall include all of the following:
   a) assessments;
   b) changes to medication infusion dosage;
   c) patient teaching;
   d) patient’s response to therapy;
   e) any unexpected/adverse findings, including interventions taken; and
   f) communication with members of the health care team, including the MRHP.

12.4 The health care professional shall document the following with all transfers of care (e.g., from unit to unit, or hospital to hospital), or more frequently as per site processes:
   a) patient-controlled nerve block bolus doses given;
   b) patient-controlled nerve block bolus doses attempted;
   c) total volume infused (in millilitres); and
   d) where applicable, clear pump totals.

12.5 All independent double-checks shall be documented in the health record.

12.6 Record the pump identification number in the patient’s health record and with any pump exchange.

12.7 Following removal of the PNB catheter, the health care professional shall document all of the following on the patient’s health record:
   a) date and time of PNB catheter removal;
   b) observations of PNB site (e.g., colour, tenderness, drainage) and catheter (e.g., tip intact, damage);
   c) actions taken (e.g., swab and/or tip sent for culture and sensitivity testing);
   d) ease of PNB catheter removal; and
   e) patient’s response to procedure.
DEFINITIONS

Acute Pain Service (APS) means all acute care physicians practicing within Acute Pain Service roles and will include on-call anesthesiologists responsible for providing pain management options for patients, or other designated clinicians (e.g., Nurse Practitioner, Surgeon).

Alternate decision-maker means a person who is authorized to make decisions with or on behalf of the patient. These may include, specific decision-maker, a minor’s legal representative, a guardian, a ‘nearest relative’ in accordance with the Mental Health Act (Alberta), or an agent in accordance with a Personal Directive, or a person designated in accordance with the Human Tissue and Organ Donation Act (Alberta). This also includes what was previously known as the substitute decision-maker.

Authorized prescriber means a health care professional who is permitted by federal and provincial legislation, their regulatory college, Alberta Health Services, and practice setting (where applicable) to prescribe medications.

Clinic bolus for a nerve block means a dose of nerve block medication administered by the health care professional. The dosage may be higher than bolus dose and is usually reserved for use in a pain crisis when patient controlled bolus dosing is ineffective.

Family means one or more individuals identified by the patient as an important support, and who the patient wishes to be included in any encounters with the health care system, including but not limited to, family members, legal guardians, friends, and informal caregivers.

Health care professional means an individual who is a member of a regulated health discipline, as defined by the Health Professions Act (Alberta), and who practises within scope and role.

Health record means the collection of all records documenting individually identifying health information in relation to a single person.

Independent double-check means a verification process whereby a second health care professional conducts a verification of another health care professional’s completed task. The most critical aspect is to maximize the independence of the double-check by ensuring that the first health care professional does not communicate what they expect the second health care professional to see, which would create bias and reduce the visibility of an error.

Informed consent means the patient’s agreement (or alternate decision-maker) to undergo a treatment/procedure after being provided, in a manner the patient can understand, with the relevant information about the nature of the treatment/procedure(s), its benefits, potential risks and alternatives, and the potential consequences of refusal.

Most responsible health practitioner (MRHP) means the health practitioner who has responsibility and accountability for the specific treatment/procedure(s) provided to a patient and who is authorized by Alberta Health Services to perform the duties required to fulfill the delivery of such a treatment/procedure(s) within the scope of their practice.
Order means a direction given by a regulated health care professional to carry out specific activity(-ies) as part of the diagnostic and/or therapeutic care and treatment to the benefit of a patient. An order may be written (including handwritten and/or electronic), verbal, by telephone, or facsimile.

Pain means a subjective experience encompassing both noxious sensation and suffering. Pain is best understood from the patient’s perspective and description of that experience. The patient’s experience of pain is expressed within the context of the illness, family, social network, community, culture, and spiritual orientation. The patient’s pain affects this matrix of relationships and is in turn altered by them.

Pain assessment tool means a reliable and valid measurement tool used to assess pain intensity.

Patient means all persons, inclusive of residents and clients, who receive or have requested health care or services from Alberta Health Services and its health care providers. Patient also means, where applicable:
   a) a co-decision-maker with the person; or
   b) an alternate decision-maker on behalf of the person.

Pump settings means the mode of delivery that is programed into the SMART pump that may include but is not limited to the following: continuous rate, continuous plus bolus, continuous plus intermittent bolus, intermittent bolus, clinician bolus, bolus dose, bolus lockout interval, and hourly limit.

REFERENCES

- Appendix A: Valid Pain Assessment Tools (Self Report – Unidimensional)
- Appendix B: Signs and Symptoms of Local Anesthetic Systemic Toxicity
- Alberta Health Services Governance Documents:
  - Consent to Treatment/Procedure(s): Adults with Impaired Capacity and Adults who Lack Capacity Procedure (#PRR-01-02)
  - Consent to Treatment/Procedure(s) Policy Suite (#PRR-01)
  - Independent Double-Check Guideline (#PS-60-01)
  - Invasive Infusion Line and Tubing Verification Policy (#PS-15)
  - Medication Orders Policy Suite (#PS-93)
  - Patient Identification Policy (#PS-06)
- Alberta Health Services Resources:
  - Regional Anesthesia Nerve Block Resource Manual

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## APPENDIX A

### Valid Pain Assessment Tools (Self Report - Unidimensional)

<table>
<thead>
<tr>
<th>Measure</th>
<th>Indicator</th>
<th>Considerations</th>
</tr>
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<tbody>
<tr>
<td>Numeric Rating Scale (NRS)</td>
<td>• Asks patients to rate their pain from 0 to 10</td>
<td>• Used in adults, older adults</td>
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<tr>
<td></td>
<td>• Scored 0-10 with the anchors of 0 being no pain and 10 being pain as bad as it can be</td>
<td>• Well established evidence of reliability, validity, and ability to detect change</td>
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<td></td>
<td>• Used in adults, older adults</td>
<td>• Quick and easy to use</td>
</tr>
<tr>
<td>Modified Verbal Descriptor Scale (VDS)</td>
<td>• A list of adjectives used to describe different levels of pain intensity</td>
<td>• Used with adults to explain pain intensity (no pain is 0, mild is 1 to 3, moderate 4 to 6, severe 7 to 10)</td>
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<tr>
<td></td>
<td>• 4 point (or more) VDS descriptors (e.g., no pain, mild, moderate and severe)</td>
<td>• Established validity and reliability</td>
</tr>
<tr>
<td>Faces Pain Scale - Revised (FS-R)</td>
<td>• Revised to be compatible with scoring with other self-rating scales</td>
<td>• Intended for use in children and the elderly</td>
</tr>
<tr>
<td></td>
<td>• 6 gender neutral faces range from no pain to as much pain is possible</td>
<td>• Well established evidence of reliability, validity and ability to detect change</td>
</tr>
<tr>
<td></td>
<td>• Scored 0 to 10</td>
<td>• Quick and easy to use</td>
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Note: Other valid self-report unidimensional and multidimensional pain assessment tools are available. In addition, valid behavioural pain assessment tools are available for adults and elders unable to self-report pain.
### APPENDIX B

**Signs and Symptoms of Local Anesthetic Systemic Toxicity**

| Early Signs and Symptoms Include: | • Drowsiness  
| • Behaviour changes  
| • Myoclonus  
| • Tremors  
| • Tinnitus  
| • A metallic taste  
| • Circumoral numbness  
| • Dizziness  
| • Confusion  
| • Visual disturbances  
| • Irritability |
| Late Signs and Symptoms Include: | • Restlessness  
| • Seizures  
| • Cardiac dysrhythmias  
| • Cardiac arrest |