DT Procedure Rooms MSJ: Procedural Sedation: Administration and Monitoring

Site Applicability

MSJ Delia Tetrault (DT) Procedure Rooms

Practice Level

Registered Nurses: Specialized skill.

Restricted to Registered Nurse (RN) who:

1. Successfully completed a PHC approved program of education on use of Procedural Sedation and Analgesia (PSA) i.e. Safe And Effective Procedural Sedation and Analgesia (SEPSA) Workshop (re-certification every two years).
2. Are skilled in airway management and resuscitation.
3. Demonstrate the knowledge, skills and ability to monitor basic ECG and response to arrhythmias.
4. Demonstrate the knowledge, skills and ability to safely administer relevant medications and their antagonists. Have adequate opportunity to maintain competency required administering, managing and monitoring patients receiving procedural sedation.

Requirements

Informed consent must be obtained and documented by a physician as per PHC Consent to Health Care Policy prior to procedural sedation occurring.

A physician or the surgeon must be present during procedural sedation, while the patient is sedated and immediately accessible on site until the patient meets Discharge or Transfer from Procedure Clinic / Area criteria**.** See Appendix A.

The surgeon is responsible for:

Writing the order for PSA administration.

- Assessing the patient suitability for PSA including allergies and problems with previous anesthetics and sedations.
- Determining the ASA classification of patients (Appendix B), documented on the patient's Powerchart (Surgical Booking- Ophthalmology Surgery Pre-Admission History, Form # PHC OR069).
- Determining potential conditions that may prompt further consultation with the anesthesiologist prior to PSA administration by the sedation nurse. Relative contraindications

include anatomical or medical conditions that could potentially complicate sedation. See Appendix C.

Patients receiving procedural sedation MUST be observed and monitored during and after the administration of the medication until the discharge criteria for 1:1 monitoring are met Appendix A.

Need to Know

Clinical Indication

When parenteral medications are used as an adjunct to effective local and/or topical anesthesia to improve patient comfort and reduce anxiety to facilitate the performance of a procedure and:

- Parenteral medications are administered by registered nurses; and/or
- Monitoring of the patient's airway, respiratory, or hemodynamic status is the responsibility of a registered nurse and/or respiratory therapist.

Required Clinicians in DT PR:

A minimum of **2** clinicians are required to perform procedural sedation:

- A Physician to perform the procedure and order medications. The physician performing the procedure CANNOT be responsible for patient monitoring or medication administration.
- A qualified RN to monitor airway patency, adequacy of ventilation, vital signs, and administer medications.
- The RN monitoring the patient and administering medication must have no other responsibilities during and after the procedure that will compromise their ability to continuously monitor the patient.
- Additional clinicians as required to assist with the procedure.

1. In DT PR, the RN assigned to administer procedural sedation is called the sedation nurse. The sedation nurse will:

    - Verify and initiate planned sedation orders.
    - **Only** administer **light** to **moderate procedural sedation**
    - Administer PSA to a patient with **ASA** (American Society of Anesthesiology) **score I, II** (e.g. patient has hypertension which is well controlled) and **stable ASA III** (e.g. patient with diabetes and angina, that takes medication, including insulin and angina which is fairly stable) Appendix B.
    - Notify the surgeon to refer the patient with **ASA score greater than III** to the anesthesiologist for further consultations. (Appendix C)
    - Assess and monitor the patient during and after the procedural sedation administration until the discharge criteria for 1:1 monitoring are met. (Appendix A)

- Document PSA administration and monitoring on Ophthalmology Quick View and Interactive View I &O view.

2. Procedural sedation is a process where medications are titrated to improve patient comfort, and reduce anxiety to facilitate the performance of a procedure, while the patient remains conscious and responsive. Procedural sedation is an adjunct to effective local and/or topical anesthesia.
3. The endpoint of sedation is tailored for each individual based upon the urgency and nature of the procedure, and individual patient characteristics.
4. Medications employed for procedural sedation can rapidly affect the patient's airway, breathing, and cardiovascular status adversely.
5. Patients with a difficult airway, shared airway (when the procedure involves or affects the airway), multiple co-morbidities , underlying cardiorespiratory disease, prone positioning, polypharmacy, advanced age and increased body mass index constitute higher risk groups for procedural sedation.
6. When planning for procedural sedation the urgency of the procedure is balanced against the risk of aspiration.
7. If a patient's airway, breathing, or cardiovascular status is threatened or inadequate, which may include if the patient is unconscious or obtunded the **procedure must be immediate suspended** and resuscitation measures commenced to establish and maintain adequacy of airway, breathing, and circulation. **Call Code Blue right away.**

8. All reasonable efforts must be made prior to commencing a procedure to ensure the patient undergoing procedural sedation has a **responsible adult to accompany them home**. A reasonable adult not being available to accompany the patient home post procedure will result in:

    - Cancellation of a planned procedure; or
    - An adequate period of observation until the patient meets discharge criteria and has returned to baseline cognitive (Appendix A) and functional status as determined by the physician.
    - A further 1 hour period of observation prior to discharge is required for patients who received unintended deep sedation or an unintended period of general anesthesia.
    - Patients must be instructed not to drive home. Provide patients with a taxi voucher if necessary

Equipment and Supplies

Perform a safety check on the following equipment prior to PSA administration:

- Supplemental oxygen (check O_2 tank in each OR and stretcher)
- Suction machine (in each OR)

Check supplies in the Procedure Room Cart drawer #4

- Bag-valve-mask (in each OR and pre and post area)

- Oral airways
- Oral suction tip
- Oxygen delivery devices (e.g. nasal prongs, **face** mask) that permit simultaneous waveform capnography
- Capnography tubing

Note: Consider End Tidal CO_2 monitoring: For any patient whose respiratory status may be difficult to assess due to draping or positioning. Refer to B-00-13-10241 – Procedural Sedation

Immediately Available

These items must be immediately available and the sedation nurse must know how to access:

- Appropriate reversal agents for medications used during the procedure including:
  - naloxone if opiates will be administered
  - flumazenil if benzodiazepines will be administered (do not draw up unless requested)
- Crash Cart, including defibrillator and ACLS medications (this can include equipment and supplies that are brought with the activation of an on-site code blue).

Protocol

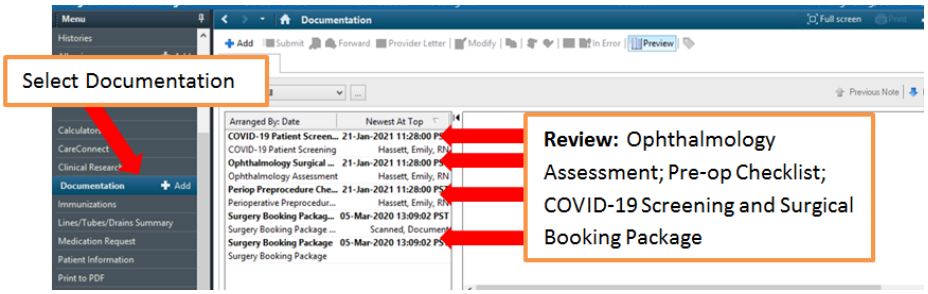
Review the patient PowerChart

The sedation nurse will:

- Search patient in **Perioperative tracking**. Find the right patient and right encounter as displayed on the MSJ Preop tab. Verify correct patient's chart has opened.
- Review and verify informed consent is complete.
- Review allergies have been assessed and documented.
- Obtain the patient's **ASA** scoring has been documented by a physician. This is documented under Surgical Booking- Ophthalmology Surgery Pre-Admission History, Form # PHC OR069.
- Verify planned sedation orders and ensure required medications are available.

Identify any special precautions (e.g. COVID-19 patient screening and isolation requirements).

Assess the patient and **review** the Patient Preop Summary Documentation including Ophthalmology Assessment, Perioperative Preprocedure Checklist, COVID-19 Patient Screening and Surgical Booking Package.



Verify the time and type of last intake of food or drinks (See Appendix D). If the patient does not meet fasting requirements required for procedure, inform the physician, The procedure start time can be delayed until the required fasting guidelines is met, or reschedule the procedure for another day.

Notify physician if the patient has taken or received any medications with respiratory or central nervous depressing effects in the past 24 hours.

- Concerns regarding possible difficult airway or bag-valve-mask fit, or history of obstructive sleep apnea
- History of cardiovascular disease
- History of previous adverse reactions to sedatives, opioids, or general anesthesia

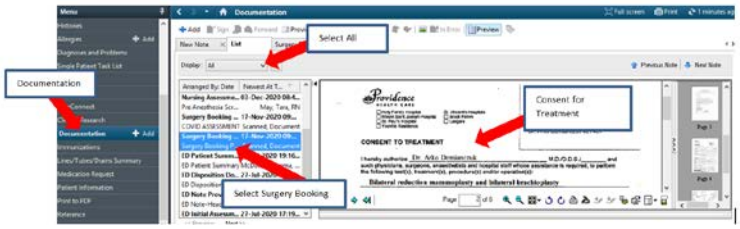
Note: The patient may be referred to anesthesiologist (Appendix C) for further consults.

Prior to Administration of Sedation:

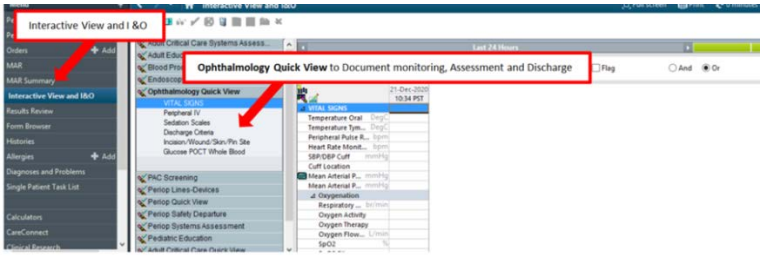
The sedation nurse (RN) will:

- Introduce themselves and their role.
- Verify the patient's identity using at least two unique identifiers. Use the patient information displayed on the blue "BANNER BAR" in Powerchart.
- Verify allergies or sensitivities with the patient; **apply allergy band** (if applicable). Communicate to the team any changes in allergy or sensitivity status as stated by the patient. Update the **Allergy** powerform as needed.

- Verify informed consent matches the scheduled/planned procedure including the site and side with the patient. Ask the patient to point to the site and side of surgery to verify site and side. The consent is also found under "**Menu"** documentation.



- Ensure the procedure site is marked as by the Surgical Site Identification Policy and Surgical and Procedural Safety Checklist (S-PSCL).
- Ensure patent IV access.
- Give the patient opportunity to ask questions or clarifications regarding surgery. Inform the surgeon and/or the OR charge nurse of any patient or surgery related issues that potentially delay the OR and for further directives.
- Ensure required equipment, including emergency equipment is present and functioning
- Obtain baseline vital signs including SpO_2 and temperature.
- Obtain a capillary blood glucose reading from patients with a history of diabetes or pre-diabetes and notify physician if blood glucose is below 4 mmol/L or above 10 mmol/L.
- Perform a respiratory and cardiovascular assessment.
- Ensure required monitoring is initiated and documented **on Interactive Iview I&O, Ophthalmology Quick View** band.



PSA administration:

The sedation nurse will:

- Assess, monitor and document required vital signs monitoring including:
  a. BP, heart rate, respiratory rate and oxygen saturation
  b. Level of consciousness
  c. Skin colour and warmth
  d. Level of pain.

- Assess, monitor and document vital signs:
  a. Every 5 minutes x 3, then:
  b. Every 15 minutes until the 1:1 discharge criteria are met (Appendix A)

- Initiate **cardiac rhythm monitoring** and document assessment if the patient has irregular pulse irregular or known arrhythmia and or with ASA Score III (ASA classification is determined the ophthalmologist performing the eye procedure). See Appendix B.

- Provide supplemental oxygen as needed to ensure oxygen saturation levels are maintained at 92% or greater, or equal to pre-procedural status.

- Observe, assess and document the patient 1:1 during and after the administration of the medication until the discharge criteria for 1:1 monitoring are met. (Appendix A). Once discharged from 1:1 monitoring, the sedation nurse may transfer the patient to the care of another nurse within the unit.
  For example:
  1. **Patient receiving PSA in the pre op area** must be observed and monitored by the sedation nurse during and after the administration of the medication until discharge criteria from 1:1 monitoring are met. (Appendix A). Once discharged from 1:1 monitoring, the sedation nurse may transfer the patient to the care of another nurse within the unit (e.g. nurse in pre op area or circulating nurse in the OR).

  2. **Patient receiving PSA or top up in the OR** must be observed and monitored 1: 1 by the sedation nurse during and after the administration of the medication. While the patient is still in the OR and the patient meets the 1:1 discharge monitoring criteria (Appendix A), the sedation nurse may transfer the patient to the care of the circulating nurse. Then, the circulating nurse will continue to monitor the patient as per routine practices.

During Procedure: Required Monitoring and Frequency

Monitoring equipment alarms must be on during entire procedure and recovery period, and must be appropriately adjusted for individual patients.

Monitoring	Required For	Frequency During Procedure	Post Procedure	
			Frequency Until Criteria Met to Discharge from 1:1 Monitoring[1]	Frequency Until Criteria Met for Discharge from Procedural Sedation Clinic/Area
Level of Consciousness *Ability to respond to verbal stimulation or give "thumbs up"* **Depth of Sedation** *Alert physician if patient enters **anesthesia or unplanned deep sedation.*** **Airway Patency** *Alert physician if patient snoring, gurgling, or other evidence of an inadequate or obstructed airway is present.* **Respiratory Rate** *Alert physician if respiratory rate is below **8 breaths per minute.*** **Heart Rate and Blood Pressure**	All Patients	• Before and after medication administration • Q 5 min • PRN	• Q 15 min • PRN	• Q 15 min x 2 then Q 30 min until discharge criteria from procedural sedation area met (return to baseline in Critical Care) • PRN • Prior to discharge from procedural sedation clinic/area
SpO_2 *Maintain SpO_2 equal to or above 94% or patient's baseline. Alert physician if SpO_2 **cannot be maintained despite supplemental oxygen.*** **Waveform Capnography** (when used) *Notify physician if evidence of inadequate ventilation including respiratory rate **below 8 breaths per minutes and/or $EtCO_2$ 50 mmHg or greater.***		Continuous (Document Q 5 min)	Continuous (Document Q 15 min)	
ECG Monitoring	• History of cardiovascular disease • ASA Score 3 or greater	Continuous when required	Continuous when required	
Assess pain and nausea, response to medication	All Patients	After medication administration, PRN	PRN	Prior to discharge from procedural sedation clinic/area

[1] Can occur in any suitable clinical area, including but not limited to a recovery area

Patients must be monitored as above (post procedure monitoring) until:

- Discharge from 1:1 monitoring criteria are met, and
- Patients may be discharged or transferred from the procedure clinic / area when the criteria from Discharge or Transfer from Procedure Clinic / Area are met. (Appendix A)

Interventions:

1. **Notify the physician** and/or **Call for help right away** if any of the following occur:
   - Decreasing level of consciousness or seizure activity
   - SpO_2 less than 92% despite increased oxygen delivery
   - Change in cardiac rhythm or heart rate (+/ - 20%)
   - Abnormal vital signs for the patient – (greater than 20% +/- difference from baseline)
   - Unable to achieve recovery criteria

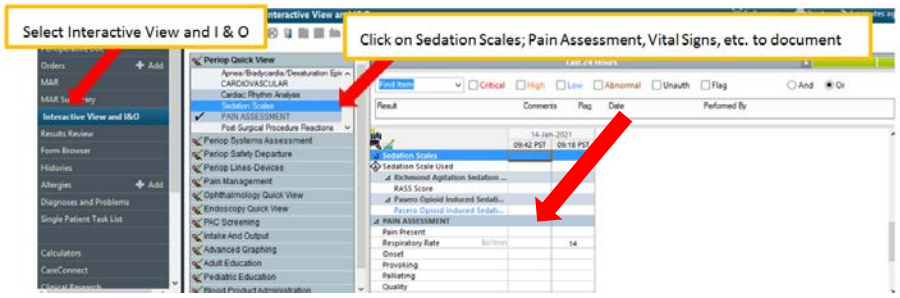
2. **Call CODE BLUE right away**, if the patient presents signs and symptoms of an adverse reaction **or** in the event of airway obstruction, decreased level of consciousness or O_2 saturation, open the airway in accordance with basic life support measures.

3. Report adverse events using PSLS for Quality Assurance purposes.

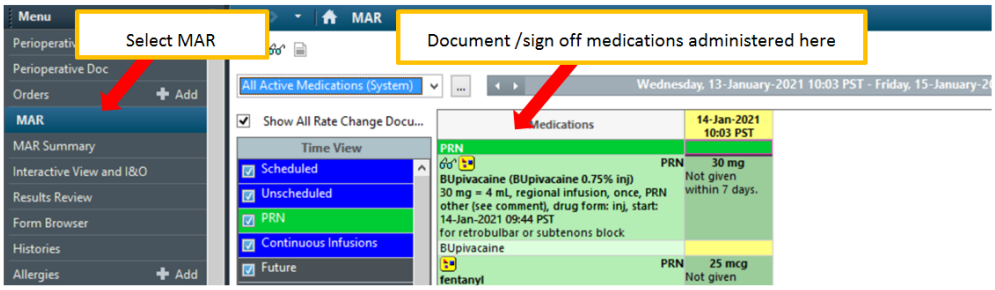
Documentation

Complete documentation in the **Procedural Sedation band in Interactive View and I & O** including**:**

- Pain assessment
- Pre-sedation monitoring
- Procedural sedation medication administered (note this does not automatically populate the MAR, that must be done separately)
- Procedural sedation and analgesia monitoring
- Post sedation monitoring



Ensure all medications administered are documented on the **eMAR** following the procedure.



Post procedure and patient discharge

The post op nurse will:

1. Observe and monitor the patient.
2. Patient may be discharged from the unit when all of the Discharge criteria from Unit/Facility/Transfer are met. (Appendix A)
   - Once a minimum score of 10 in criteria 1 to 5 is achieved
   - A total score of 13 or more is achieved in criteria 1 to 8.
   - There may be NO score of 0(zero) in any category.
   - A minimum of 30 minutes following IV sedation or analgesia and 120 minutes following reversal agent.
3. Do not discharge patient if unable to meet the Discharge criteria from Unit/Facility/Transfer criteria (Appendix A). Extend the patient observation and monitoring period until suitable for discharge. Consult with the surgeon if needed.

Patient and Family Education

Prior to discharge, appropriate verbal and written instructions must be given to the patient and/or responsible adult, including procedure and surgeon's specific instructions.

- Do not drive an automobile or operate dangerous machinery for 24 hours.
- Do not drink alcohol, or take any medication (for example sleeping pills) that will cause drowsiness for the next 24 hours
- If nausea occurs, take clear fluids only, and then progress diet to solids as tolerated.
- Take medications only as directed by physician on discharge

Evaluation

A Patient Safety Learning System (PSLS) report must be completed for any adverse event occurring during procedural sedation including:

- Use of reversal agent including naloxone or flumazenil

- State of general anesthesia is entered
- Bag-valve mask ventilation
- Endotracheal intubation
- Use of resuscitative or ACLS drugs
  (e.g. amiodarone, atropine, epinephrine, phenylephrine, norepinephrine)
- CPR
- Prolonged recovery period greater than 3 hours
- Unplanned admission to hospital as a direct result of procedural sedation

Related Documents

1. B-00-07-10060 – Cardiac Arrest (Code Blue), Initiating (SPH and MSJ)
2. B-00-07-10085 Cardiac Arrest (Code Blue) Patients with COVID-19 like Illness or Confirmed Case of COVID-19
3. B-00-13-10114 - Procedural Sedation and Analgesia (PSA) PHC Emergency Departments
4. Parental Drug Therapy Manual – Providence Health Care

References

1. Alberta Health Services. (2016). Procedural Sedation Policy.
2. Alberta Health Services (2016) Procedural Sedation Procedure.
3. American Society of Anesthesiologists. (2018). Practice Guideline for Moderate Procedural Sedation and Analgesia 2018: A Report by the American Society of Anesthesiologists Task Force on Moderate Procedural Sedation and Analgesia. *Anesthesiology*, 128(3), 437-479.
4. American Society of Anesthesiologists. (2013). Practice Guidelines for Management of the Difficult Airway: An Updated Report by the American Society of Anesthesiologists Task Force on Management of the Difficult Airway. Anesthesiology, 118:2, 1-20.
5. American Society of Anesthesiologists. (2014). *Continuum of Depth of Sedation: Definition of General Anesthesia and Levels of Sedation/Analgesia.*
6. AORN. (2018). Perioperative Standards and Recommended Practices
7. Baruch K, Falk J L, Ladde J G, edited by Walls R M, Torrey S B. (2020). Carbon dioxide monitoring (capnography). *UpToDate*. [Retrieved April 1412]. Available from https://www.uptodate.com
8. College of Physicians and Surgeons of British Columbia. Accreditation Standards. IV Procedural Sedation and Analgesia for Adults (2020) https://www.cpsbc.ca/files/u6/NHMSFP-IV-Sedation-for-Adults-Guideline.pdf
9. College of Physicians and Surgeons of British Columbia (2020) IV Procedural Sedation training requirements.
10. ORNAC. (2019). Recommended Standards, Guidelines, and Position Statements for Perioperative Registered Nursing Practice (14th ed.).
11. Phillips, N. (2016). Berry & Kohn's Operating Room technique. (13th ed.).

12. Rothrock, J.C. (2018). Alexander's' care of the patient in surgery (16th ed.).

Definitions

Anxiolysis/ Light sedation is a drug-induced state during which patients respond normally to verbal commands. Although cognitive function and physical coordination may be impaired, airway reflexes, and ventilatory and cardiovascular functions are unaffected.

Capnography: refers to the noninvasive measurement of the partial pressure of carbon dioxide (CO_2) in exhaled breath expressed as the CO_2concentration over time. The relationship of CO_2 concentration to time is graphically represented by the CO_2 waveform, or capnogram. Capnography can rapidly detect the common adverse airway and respiratory events associated with procedural sedation and analgesia (PSA), including: respiratory depression, apnea, upper airway obstruction, laryngospasm, and bronchospasm. Respiratory depression caused by oversedation will manifest an abnormally high or low $EtCO_2$ well before pulse oximetry detects a falling oxyhemoglobin saturation, especially in patients receiving supplemental oxygen.

Deep Sedation: is a drug-induced depression of consciousness during which patients cannot be easily aroused but respond purposefully* following repeated or painful stimulation. The ability to independently maintain ventilatory function may be impaired. Patients may require assistance in maintaining a patent airway, and spontaneous ventilation may be inadequate. Cardiovascular function is usually maintained.

Difficult Airway: A difficult airway is defined as the clinical situation in which a conventionally trained anesthesiologist experiences difficulty with facemask ventilation of the upper airway, difficulty with tracheal intubation, or both.

Dissociative Sedation: is a separate category from the other levels of sedation, and is caused by ketamine. Dissociative sedation is a trance like cataleptic state characterized by profound analgesia and amnesia, with retention of airway reflexes, and spontaneous respirations, and cardiopulmonary stability.

Moderate sedation: is a drug-induced depression of consciousness during which patients respond purposefully* to verbal commands, either alone or accompanied by light tactile stimulation. No interventions are required to maintain a patent airway, and spontaneous ventilation is adequate. Cardiovascular function is usually maintained.

Sedation is a continuum, and it is not always possible to maintain patients at a pre-determined sedation depth.

* Reflex withdrawal from a painful stimulus is NOT considered a purposeful response.

Appendix A

Discharge Criteria

Criteria for Discontinuing from 1:1 monitoring

- Modified Aldrete score for **Respirations** must be **2**; AND
- Modified Aldrete score for **Oxygen Saturation** must be **1 or greater;** AND
- **Total** Modified Aldrete score must be **8 or greater.**

Criteria for Discharge or Transfer from Procedure Clinic / Area

- 30 minutes after the last dose of sedation or analgesia is given; AND
- 120 minutes after the last dose of IV reversal agent administered (if given); AND
- **Total** Modified Aldrete score must be **10;** AND
- Nausea and Vomiting must be acceptable to patient; AND
- Pain must be acceptable to patient; AND
- Dressing/operative site is dry or requires extra padding but marked and not increasing; hematoma present but not growing. Indication of potential internal bleeding absent.

Modified Aldrete Scoring system (NAPAN, 2014)

Category	Criteria	Point Value
Respirations	Able to deep breath and cough freely	2
	Dyspnea or limited breathing	1
	Apneic	0
O_2 Saturation	Able to maintain SpO_2 greater than 92% on room air	2
	Requires supplemental oxygen to maintain SpO_2 greater than 90%	1
	SpO_2 below 90% even with supplemental oxygen	0
Circulation	Blood pressure +/- 20mmHg pre-procedure value	2
	Blood pressure +/- 20mmHg to 50mmHg pre-procedure value	1
	Blood pressure +/- greater than 50mmHg of pre-procedure value	0
Level of Consciousness	Awake and oriented	2
	Wakens with stimulation	1
	Not responding	0
Movement	Moves 4 limbs on own	2
	Moves 2 limbs on own	1
	Moves 0 limbs on own	0

SKIN LEGEND SCORING						
F = flesh	**Cl** = cool	**Cy** = cyanotic	**Cd** = old	**P** = pale	**D** = diaphoretic	**W**=warm

LOC LEGEND SCORING		
2 = Awake and orientated	**1** = Wakens with stimulation	**0** = NOT responding

LEVEL OF PAIN SCORING

2 = No pain or mild pain (0 to 3 on pain scale)

1 = Moderate pain controlled with medication (4 to 5 on pain scale)

0 = Severe persistent pain (6 to 10 on pain scale)

Appendix B

American Society of Anesthesiology (ASA)
Patient Classification Scale

ASA I	A normal healthy patient, e.g. Healthy patient without any systemic medical problems other than surgical
ASA II	A patient with mild systemic disease, e.g. Patient who smokes and has hypertension, which is well controlled.
ASA III	A patient with severe systemic disease, e.g. Patient with diabetes and angina. Takes medication including insulin. Angina: reasonably stable.
ASA IV	A patient with severe systemic disease that is a constant threat to life. e.g. patient with diabetes, angina and congestive heart failure. Patient has dyspnea on mild exertion and chest pain.
ASA V	The moribund patient who is not expected to survive 24 hours with or without the procedure.

Appendix C

Potential Conditions That May Prompt Referral /Consultation with the Anesthesiologist Prior To PSA Administration by Sedation Nurse in DT PR

- Head injury associated with loss of consciousness or altered level of consciousness.
- CNS lesions associated with increased intracranial pressure.
- History of airway instability tracheal surgery or stenosis or tracheal malacia.
- Facial, dental or airway abnormality that might inhibit or preclude tracheal intubation.
- Allergy or sensitivity to relevant medications.
- Failed previous sedation/extreme anxiety.
- Difficult airway syndrome/abnormal face, mouth, neck, dentition.
- Sleep apnea (Diagnosed).
- Stridor, airway obstruction.
- Increased intracranial pressure.
- Severe neurological impairment.
- Patients at high risk for vomiting or aspiration.
- Spinal instability.

Unstable blood glucose levels:

- Glucose less than 4 mmol/L or more than 12 mmol/L requires management and may require consultation with appropriate physician to manage glucose control.

Hemodynamically unstable:

- Systolic BP greater than 200
- Diastolic BP greater than 100
- Systolic BP less than 90
- Should prompt consultation for management and may postpone procedure.

Severe cardio-vascular disease:

- Any cardiac condition with functional class NYHA or CCVS Class III should prompt consultation and may delay procedure.

Severe obesity:

- BMI greater than 31 should prompt consultation for moderate or deep sedation.

Appendix D

Fasting Guidelines

Type of Food	Minimum Fasting Duration
Meat, fried or fatty foods	8 hours
Light meal (such as toast and a clear fluid); or Infant formula; or Non-human milk	6 hours
Breast milk (no additions allowed to pumped breast milk)	4 hours
Clear Fluids	2 hours

Persons/Groups Consulted:

MSJ DT Procedure Room Staff

MSJ DT Procedure Room Clinical Nurse Leader

Developed By

Nurse Educator OR, DT Procedure Rooms MSJ

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Posted Date:	21-APR-2021
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Last Reviewed:	
Approved By:	PHC
	Professional Practice Standards Committee
Owners:	PHC
	MSJ Surgery