Emergency Department Procedural Sedation

Karen Bell

College of Nursing, East Carolina University

NURS 8277: Doctor of Nursing Practice Project

Dr. Terri Isaacs

April 27, 2026

Emergency Department Procedural Sedation

Important Findings

- After education of Registered Nurses (RNs) in the Emergency Department (ED), confidence levels and quiz scores improved regarding procedural sedation.
- Simulation education was effective in developing the skills staff need to safely provide procedural sedation in the ED.
- The Healthy People 2030 benchmark to increase access to medical care in rural areas was accomplished (Office of Disease Prevention and Health Promotion, n.d.).
- Patients will no longer have to be transferred to another facility for procedural sedation.
- The hospital will gain revenue from performing procedures in the ED.

Background

The nursing shortage has an ongoing pitfall for healthcare (Muir et al., 2024). The ED work environment is demanding, with high-acuity patients, and this small rural ED in North Carolina often lacks enough staff to care for them. The ED nursing staff has a high turnover, and nurses are often placed in positions without adequate education and training to care for patients requiring specialized procedures. At the project site, patients requiring high-risk, low-frequency procedural sedation would need to be transferred to other facilities due to insufficient education and training. The project site also lacked the proper medications and policies to care for patients undergoing painful procedures safely. Fortunately, the project site administration supports expanding services offered to the community by educating the ED nurses.

Purpose

The project aimed to improve access to care for patients who need specialized procedures by educating RNs on safely treating and monitoring patients requiring procedural sedation.

Methodology

The research design for implementing this project was the Plan-Do-Study-Act (PDSA) model (Katowa-Mukwato et al., 2023). The PDSA model enables testing workflow changes on a small scale and learning through repeated cycles until everyone understands the process. The PDSA process during this project is noted below:

PLAN: (what to accomplish)

- To educate RNs in the ED regarding procedural sedation and improve rural community access to care that was not readily available at the project site

DO: (assess baseline knowledge of RNs)

- Confidence Level survey using Likert scale (see Appendix A)
- Demographics to obtain years of experience, education level, etc. (see Appendix B)
- Pre-education quiz with 30 questions taken from the revised policy (see Appendix C)
- Answer key to pre-education quiz (see Appendix D)
- Review of revised policy (see Appendix E)
- Review of Nursing Checklist (see Appendix F)
- Review of Nursing Flowsheet (see Appendix G)

STUDY: (simulation and post-education quiz)

- High fidelity simulation using a live participant for realistic scenarios (Hill et al., 2023)
- RNs completed the checklist and flowsheet during simulation
- Simulation of medication administration (RN was given orders, and the dose was correctly identified)

- Patient was monitored and discharged when the criteria were met
- Documentation completed
- Post-education quiz (repeat of pre-education quiz)
- Repeat Confidence level survey

ACT: (after revisions were completed)

- RNs demonstrated competence and reliability in managing procedural sedation
- The project site adopted the policy, checklist, and flowsheet
- Ongoing education for ED RNs will be provided

Results

- The entire staff of 23 RNs participated in the implementation process
- Of the 23 RNs, 15 were associate degree RNs, six had BSN degrees, one had an MSN degree, and one had a PhD degree
- The associate degree RNs' average score was 80% on pre-education confidence levels; however, they scored 52% on the pre-education quiz. This was a 28% difference in what they thought they knew and what they knew. Their confidence levels were based on thinking the providers would know what to do, and they would follow their instructions. Further instructions were given on all aspects of the RNs' responsibilities within the ED. The intended post-education confidence levels and post-education quiz scores improved to 95% and 100%, respectively
- BSN, MSN, and PhD nurses averaged a strong correlation between pre-education confidence levels and quiz scores, with scores differing by an average of 8%, which was

realistic. Post-education confidence levels and post-education quiz scores improved to 95% and 100%, respectively

Strengths

- Support from the project site leadership
- ED RNs cooperation and positive response to constructive criticism
- Providers eager to assist with simulation

Limitations

- No structured schedule for education of RNs
- Room availability in the ED for simulation
- Resistance of providers on Ketamine added to policy and medication dispense
- Distraction of Electronic Health Record (EHR) introduced during project implementation

Implications

The findings of this project suggest that simulation-based training increases ED nurses' self-confidence and skill in managing sedation complications. Therefore, it is recommended that the project site adopt simulation workshops during orientation and as a mandatory part of the annual procedural sedation education process. Furthermore, implementing the new sedation policy, documentation checklist, and flowsheet will enhance the consistency of patient monitoring in the ED, directly improving safety and confidence in the procedural environment.

Recommendations

- Inclusion of providers in the procedural-based education initiatives
- It is imperative to have dedicated time set aside for education

References

Hill, K., Schumann, M., Farren, L., & Clerkin, R. (2023, July 12). An evaluation of the use of low-fidelity and high-fidelity mannequins in clinical simulations in a module preparing final year children's and general nursing students for internship placement. *Comprehensive Child and Adolescent Nursing*, *46*(4), 295–308. https://doi.org/10.1080/24694193.2023.2232456

Katowa-Mukwato, P., Mwiinga-Kalusopa, V., Chitundu, K., Kanyanta, M., Chanda, D., Mbewe Mwelwa, M., Ruth, W., Mundia, P., & Carrier, J. (2021). Implementing evidence based practice nursing using the PDSA model: Process, lessons and implications. *International Journal of Africa Nursing Sciences*, *14*, Article 100261. https://doi.org/10.1016/j.ijans.2020.100261

Muir, K., Merchant, R. M., Lasater, K. B., & Brooks Carthon, J. (2024). Emergency nurses' reasons for not recommending their hospital to clinicians as a good place to work. *JAMA Network Open*, *7*(4), e244087. https://doi.org/10.1001/jamanetworkopen.2024.4087

Office of Disease Prevention and Health Promotion (n.d.). *Reduce the proportion of people who can't get medical care when they need it – data-healthy people 2030.* *https://odphp.health.gov/healthypeople/objectives-and-data/browse-objectives/health-care-access-and-quality/reduce-proportion-people-who-cant-get-medical-care-when-they-need-it-ahs-04/data*

Appendix A
Pre-education Confidence Level Likert Scale

Pre-education Confidence Level Questionnaire for Procedural Sedation
Emergency Department Nurses

Employee Name: _____
Date:_____

Circle the confidence level from 1 being not at all confident and 6 being extremely confident:

1. Assisting with procedural sedation.

Not at all Confident					Extremely Confident
1	2	3	4	5	6

2. Setting up for procedural sedation (monitor, suction, oxygen, etc.).

Not at all Confident					Extremely Confident
1	2	3	4	5	6

3. Monitoring the patient *before* the procedure.

Not at all Confident					Extremely Confident
1	2	3	4	5	6

4. Charting the patient's clinical status using the Modified Aldrete Score.

Not at all Confident					Extremely Confident
1	2	3	4	5	6

5. Monitoring the patient *during* the procedure.

Not at all Confident					Extremely Confident
1	2	3	4	5	6

6. Monitoring the patient *after* the procedure.

Not at all Confident					Extremely Confident
1	2	3	4	5	6

7. Knowledge of the levels of sedation.

Not at all Confident					Extremely Confident
1	2	3	4	5	6

8. Knowledge of medications for procedural sedation.

Not at all Confident					Extremely Confident
1	2	3	4	5	6

9. Discharge criteria for post procedural sedation.

Not at all Confident					Extremely Confident
1	2	3	4	5	6

Appendix B
Employee Information Demographics

Employee Information for ED Nurses Questionnaire for Procedural Sedation

Employee Name:_____

Date:_____

1. **Employment Status: (check one)**
   - ☐ **Full time**
   - ☐ **Part-time**
   - ☐ **Per diem**
   - ☐ **Travel nurse**

2. **Years of experience: (check one)**
   - ☐ **1-3 years**
   - ☐ **4-6 years**
   - ☐ **7-9 years**
   - ☐ **Greater than 10 years**

3. **Level of education completed: (check one)**
   - ☐ **ADN**
   - ☐ **BSN**
   - ☐ **MSN**
   - ☐ **PhD**
   - ☐ **Other:** _____

4. **What shifts do you primarily work? (check one)**
   - ☐ **Days (6a – 6p)**
   - ☐ **Nights (6p – 6a)**

5. **How long have you worked in the ED setting? (check one)**
   - ☐ **1-3 years**
   - ☐ **4-6 years**
   - ☐ **7-9 years**
   - ☐ **Greater than 10 years**

6. **Have you ever managed a patient with procedural sedation? (check one)**
   - ☐ **Yes**
   - ☐ **No**

7. **What certifications do you hold? (check all that apply)**
   - ☐ **Basic Life Support (BLS)**
   - ☐ **Adult Cardiac Life Support (ACLS)**
   - ☐ **Pediatric Advanced Life Support (PALS)**
   - ☐ **Other:**_____

Appendix C
Pre-education Quiz

Nursing Pre-education Questionnaire for Procedural Sedation

Nurse Name:_____
Date:_____

Circle correct answer letter

1. Staff that is required at the bedside during procedural sedation includes:
   - **A.** Provider and Qualified Nurse
   - **B.** Provider, Qualified Nurse, and Respiratory Therapist
   - **C.** Provider
   - **D.** Qualified Nurse

2. Moderate sedation is defined as:
   - **A.** A drug induced state during which patients respond normally to verbal commands
   - **B.** A drug induced depression of consciousness during which patient cannot be easily aroused
   - **C.** A drug induced state during which patients do not respond
   - **D.** A drug induced depression of consciousness during which patients respond purposefully to verbal commands, light tactile stimulation might be required

3. Each patient's procedural sedation care is planned.
   - **A.** True
   - **B.** False

4. The reversal agent for benzodiazepines is:
   - **A.** Narcan
   - **B.** Ativan
   - **C.** Versed
   - **D.** Romazicon

5. It is within the scope of practice for Registered Nurses to administer Propofol IV per North Carolina Board of Nursing (NCBON).
   - **A.** True
   - **B.** False

6. To qualify to administer medications and monitor procedural sedation, registered nurses must:
   - **A.** Have BLS certification
   - **B.** Have BLS and ACLS certifications
   - **C.** Have BLS, ACLS, and PALS certifications along with a competency review within the last 12 months
   - **D.** None of the above

7. What forms are required for procedural sedation at WRMC?
- **A.** Provider Flowsheet and Consent form
- **B.** Nursing Checklist
- **C.** Nursing Flowsheet
- **D.** All the above

8. The Modified Aldrete Score is used to assess a patient's recovery from sedation. How many components are included in the Modified Aldrete Score?
- **A.** 4
- **B.** 2
- **C.** 7
- **D.** 5

9. Equipment needed for procedural sedation include:
- **A.** Cardiac monitor, Pulse oximeter
- **B.** Supplemental oxygen source, Bag valve mask
- **C.** Crash cart, suction
- **D.** All of the above

10. A pre-procedural "time out" does not need to be performed for procedural sedation.
- **A.** True
- **B.** False

11. How often should a full set of vital signs and Modified Aldrete score be documented *during* procedural sedation?
- **A.** Every 10 minutes
- **B.** Every 5 minutes
- **C.** Every 15 minutes
- **D.** Every 30 minutes

12. What form is used to document vital signs during entire procedural sedation process for WRMC?
- **A.** Nursing Checklist for Procedural Sedation
- **B.** Provider Flowsheet for Procedural Sedation
- **C.** Nursing Flowsheet for Procedural Sedation
- **D.** Emergency Department Nursing Questionnaire for Procedural Sedation

13. The patient may be discharged when the Modified Aldrete score is:
- **A.** 8 or higher
- **B.** At least 6
- **C.** More than baseline
- **D.** 7 or higher

14. Desirable effects from sedation include all of these *except:*

- **A.** Hypotension
- **B.** Relaxation
- **C.** Cooperation
- **D.** Intact protective reflexes

15. The Mallampati Score is assessment of what system?

- **A.** Neurological
- **B.** Renal
- **C.** Airway
- **D.** Cardiovascular

16. Special considerations for the elderly for procedural sedation include:

- **A.** Comorbidities
- **B.** Poly-medication
- **C.** Drug Interactions
- **D.** All the above

17. The ASA classification stands for:

- **A.** American Society of Anesthesiologists
- **B.** Association of Anesthesiologists
- **C.** Assistant State of Anesthesiology
- **D.** Authority Standards of Anesthesiology

18. Procedural Sedation patient consent may be signed by the patient or guardian.

- **A.** True
- **B.** False

19. Prior to discharge after procedural sedation, the last sedative or narcotic analgesia dose should be at least:

- **A.** 15 minutes
- **B.** 30 minutes
- **C.** 45 minutes
- **D.** 1 hour

20. How many hours does a patient have to wait for discharge after receiving reversal agents during procedural sedation?

- **A.** 1
- **B.** 2
- **C.** 3
- **D.** 4

21. CC is a 30-year-old AA female who presented to the ED on 8/15/25 with a dislocated shoulder left side. She weighs 194 lb., Ht. 5'4", NKA. She received Midazolam with no effect due to drug resistance. The Provider promptly ordered Propofol 1mg/kg. How much Propofol should the patient receive?

A. 42mg
B. 88mg
C. 94mg
D. 68mg

22. How should Propofol be administered for procedural sedation? (Best practice)

A. IV bolus over 3-5 minutes
B. IVP in short incremental doses
C. IV infusion over 15 minutes
D. None of the above

23. It is okay to give Propofol to patients with egg/soybean allergies.

A. True
B. False

24. Patient Joe Jones presented to the Emergency Department with a dislocated shoulder. The patient is 6'3" and weighs 220 pounds. What is the usual IV dose range of Ketamine for procedural sedation in adults?

A. 0.25 – 0.5 mg/kg
B. 0.5 – 1 mg/kg
C. 1-2 mg/kg
D. 3-5 mg/kg

25. Ketamine is contraindicated in which of the following situations?

A. Patients with reactive airway disease
B. Patients with severe hypertension or increased intracranial pressure
C. Patients requiring bronchodilation
D. Patients with mild hypotension

26. Which of the following best describes "emergence reactions" associated with Ketamine?

A. Profound respiratory depression after sedation
B. Hallucinations, agitation, or delirium during recovery
C. Hypotension and bradycardia upon waking
D. Severe nausea and vomiting post-sedation

27. Which adjunct medication is sometimes co-administered with Ketamine to reduce emergence reactions?

A. Atropine
B. Midazolam
C. Naloxone
D. Flumazenil

28. A patient receiving Ketamine develops hypersalivation. Which intervention is most appropriate?

- **A.** Administer Glycopyrrolate or Atropine
- **B.** Increase the Ketamine dose
- **C.** Fentanyl
- **D.** Lorazepam

29. Best practice is to administer the entire loading dose of Propofol at once over 3-5 minutes.

- **A.** True
- **B.** False

30. During procedural sedation, Propofol can be repeated every 1-3 minutes until the desired level of sedation is achieved. The 2nd dose is ordered at 0.5mg/kg. Calculate the correct dose for a patient weighing 194 lbs.

- **A.** 22mg
- **B.** 40mg
- **C.** 44mg
- **D.** 88mg

Appendix D
Pre-education Quiz Answer Key

Answer Key for
Nursing Pre-education Questionnaire for Procedural Sedation

Nurse Name:_____
Date:_____

Circle correct answer letter

1. Staff required at the bedside during procedural sedation includes:
   - **A.** Provider and Qualified Nurse
   - **B.** Provider, Qualified Nurse, and Respiratory Therapist
   - **C.** Provider
   - **D.** Qualified Nurse

2. Moderate sedation is defined as:
   - **A.** A drug induced state during which patients respond normally to verbal commands
   - **B.** A drug induced depression of consciousness during which patient cannot be easily aroused
   - **C.** A drug induced state during which patients do not respond
   - **D.** A drug induced depression of consciousness during which patients respond purposefully to verbal commands, light tactile stimulation might be required

3. Each patient's procedural sedation care is planned.
   - **A.** True
   - **B.** False

4. The reversal agent for benzodiazepines is:
   - **A.** Narcan
   - **B.** Ativan
   - **C.** Versed
   - **D.** Romazicon

5. It is within the scope of practice for Registered Nurses to administer Propofol IV per North Carolina Board of Nursing (NCBON).
   - **A.** True
   - **B.** False

6. To qualify to administer medications and monitor procedural sedation, registered nurses must:
   - **A.** Have BLS certification
   - **B.** Have BLS and ACLS certifications
   - **C.** Have BLS, ACLS, and PALS certifications along with a competency review within the last 12 months

D. None of the above

7. What forms are required for procedural sedation at WRMC?
- **A.** Provider Flowsheet and Consent form
- **B.** Nursing Checklist
- **C.** Nursing Flowsheet
- **D.** All of the above

8. The Modified Aldrete Score is used to assess a patient's recovery from sedation. How many components are included in the Modified Aldrete Score?
- **A.** 4
- **B.** 2
- **C.** 7
- **D.** 5

9. Equipment needed for procedural sedation include:
- **A.** Cardiac monitor, Pulse oximeter, advanced airway equipment
- **B.** Supplemental oxygen source, Bag valve mask
- **C.** Crash cart, suction, IV access secured, defibrillator
- **D.** All of the above

10. A pre-procedural "time out" does not need to be performed for procedural sedation.
- **A.** True
- **B.** False

11. How often should a full set of vital signs and Modified Aldrete score be documented *during* procedural sedation?
- **A.** Every 10 minutes
- **B.** Every 5 minutes
- **C.** Every 15 minutes
- **D.** Every 30 minutes

12. What form is used to document vital signs during entire procedural sedation process for WRMC?
- **A.** Nursing Checklist for Procedural Sedation
- **B.** Provider Flowsheet for Procedural Sedation
- **C.** Nursing Flowsheet for Procedural Sedation
- **D.** Emergency Department Nursing Questionnaire for Procedural Sedation

13. The patient may be discharged when the Modified Aldrete score is:
- **A.** 8 or higher
- **B.** At least 6
- **C.** More than baseline
- **D.** 7 or higher

14. Desirable effects from sedation include all of these *except:*

A. Hypotension
B. Relaxation
C. Cooperation
D. Intact protective reflexes

15. The Mallampati Score is assessment of what system?

A. Neurological
B. Renal
C. Airway
D. Cardiovascular

16. Special considerations for the elderly for procedural sedation include:

A. Comorbidities
B. Polypharmacy
C. Drug Interactions
D. All of the above

17. The ASA classification stands for:

A. American Society of Anesthesiologists
B. Association of Anesthesiologists
C. Assistant State of Anesthesiology
D. Authority Standards of Anesthesiology

18. Procedural Sedation patient consent may be signed by the patient or guardian.

A. True
B. False

19. Prior to discharge after procedural sedation, the last sedative or narcotic analgesia dose should be at least:

A. 15 minutes
B. 30 minutes
C. 45 minutes
D. 1 hour

20. How many hours does a patient have to wait for discharge after receiving reversal agents during procedural sedation?

A. 1
B. 2
C. 3
D. 4

21. CC is a 30-year-old AA female who presented to the ED on 8/15/25 with a dislocated shoulder left side. She weighs 194 lb., Ht. 5'4", NKA. She received Midazolam with no effect due to drug resistance. The Provider promptly ordered Propofol 1mg/kg. How much Propofol should the patient receive?

A. 42mg
B. 88mg
C. 94mg
D. 68mg

22. How should Propofol be administered for procedural sedation? (Best practice)

A. IV bolus over 1-3 minutes
B. IVP in short incremental doses
C. IV infusion over 15 minutes
D. None of the above

23. It is okay to give Propofol to patients with egg/soybean allergies.

A. True
B. False

24. Patient Joe Jones presented to the Emergency Department with a dislocated shoulder. The patient is 6'3" and weighs 220 pounds. What is the usual IV dose range of Ketamine for procedural sedation in adults?

A. 0.25 – 0.5 mg/kg
B. 0.5 – 1 mg/kg
C. 1-2 mg/kg
D. 3-5 mg/kg

25. Ketamine is contraindicated in which of the following situations?

A. Patients with reactive airway disease
B. Patients with severe hypertension or increased intracranial pressure
C. Patients requiring bronchodilation
D. Patients with mild hypotension

26. Which of the following best describes "emergence reactions" associated with Ketamine?

A. Profound respiratory depression after sedation
B. Hallucinations, agitation, or delirium during recovery
C. Hypotension and bradycardia upon waking
D. Severe nausea and vomiting post-sedation

27. Which adjunct medication is sometimes co-administered with Ketamine to reduce emergence reactions?

A. Atropine
B. Midazolam
C. Naloxone
D. Flumazenil

28. A patient receiving Ketamine develops hypersalivation. Which intervention is most appropriate?

A. Administer Glycopyrrolate or Atropine
B. Increase the Ketamine dose
C. Fentanyl
D. Lorazepam

29. Best practice is to administer the entire loading dose of Propofol at once over 1-3 minutes.

A. True
B. False

30. During procedural sedation, Propofol can be repeated every 2-3 minutes until the desired level of sedation is achieved. The 2nd dose is ordered at 0.5mg/kg. Calculate the correct dose for a patient weighing 194 lbs.

A. 22mg
B. 40mg
C. 44mg
D. 88mg

Appendix E
Procedural Sedation Policy

Purpose:
To provide guidelines for the delivery of sedation/analgesia in a clinical setting. This policy does not apply to sedation for the therapeutic pain management or control of seizures.

Scope of Practice:
The provision of procedural sedation (sedation/analgesia) is an interdependent role requiring a medical provider's order prior to implementation. The purpose is to obtund, dull or reduce the intensity of pain and awareness without the loss of protective reflexes **(i.e.** airway) during procedures. Sedation/analgesia assists patients in tolerating unpleasant procedures by relieving anxiety, discomfort, or pain and in situations that are not particularly uncomfortable but require that they not move. Sedation/analgesia can be administered only in designated areas meeting all criteria in the protocol. The Registered Nurse (RN) providing such care must have proven competency prior to administering sedation/analgesia. Staff that MUST be present at patient bedside during *entire* procedure includes at a *minimum:* 1) Provider; 2) Qualified RN; 3) Respiratory Therapist.

Definitions:

1. Minimal Sedation (Anxiolysis): a drug induced state during which patients respond normally to verbal commands. Although cognitive function and coordination may be impaired, ventilator and cardiovascular functions are unaffected.

2. Procedural Sedation/Analgesia ("Moderate/Conscious Sedation"): 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 patient airway, and spontaneous ventilation is adequate. Cardiovascular function is usually maintained.

    a. Location: Procedural sedation is practiced in various departments within the hospital, including but not limited to ASU, Emergency Department and Medical Surgical floor. The documentation standard is continuous and hospital wide.
    b. Responsibility: Procedural sedation (conscious sedation) is ordered, and the administration is supervised by the medical provider for the specific procedure, or the medical provider may administer the medication. The medical provider is ultimately responsible for the appropriateness and safety of the sedation given.
    c. Monitoring: Minimum requirements are as follows:
        - Continuous pulse oximetry
        - Continuous non-invasive blood pressure
        - Continuous EKG/heart monitor
        - Continuous oxygen NC 02 @ 2LPM on patient and suction at bedside
        - Emergency drug and code cart at bedside
        - ET CO_2 Monitor

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

Policy:

Safe and effective administration of procedural sedation includes the following guidelines:

1. Procedural sedation is provided and monitored by qualified individuals.
2. A pre-sedation assessment is performed for each patient before beginning procedural sedation (see Nursing Checklist)
3. Each patient's procedural sedation care is planned.
4. Sedation options and risks are discussed by the Provider with the patient and family prior to administration.
5. All patients must have an intravenous access prior to administering procedural sedation.
6. Each patient's physiological status is monitored during procedural sedation administration.
7. Appropriate equipment for care and resuscitation is at bedside for monitoring/care of the patient.
8. The patient's post-procedure status is assessed appropriately.

The director of each department administering sedation will be responsible for ensuring that practices exist, and the departments are in accordance with the standards established by the department. The medical provider is responsible for determining the appropriateness of using procedural sedation in urgent or emergent situations where the patient has not been NPO. If the patient has not been NPO for an appropriate amount of time or NPO status is unknown, then the Provider will automatically order appropriate PPI medication as a precaution.

Medication and Dosages:

- Fentanyl: Adults: 25-50mcg IV over 2 minutes. Lower dose by 50% when given with benzodiazepines. 25- 50mcg IVP may be given every 5 minutes as needed **(PRN).**

- Propofol: Adult 0.5 to 1mg/kg, with additional doses of 0.25mg/kg to 0.5mg/kg every 2 to 3 minutes until the desired level of sedation is achieved.

- Ketamine: 0.1-0.3mg/kg IV (pain) – Repeat dose 0.5mg/kg every 5 minutes
  1-2 mg/kg IV (sedation)
  Onset 30-120 seconds; Duration 10 -15 minutes
  Precautions: HTN, CHF, CAD, Schizophrenia, Emesis

- Morphine: Adults: 0.25mg/kg (up to 15mg). Pediatrics 0.1-0.15mg/kg IV slowly

(total dose). Geriatric doses should be decreased 50% of Adult dose.

- Versed: Adults 16-60 years 0.2mg/kg IV with decreased in dosage of 30% when using a narcotic or CNS depressant. Pediatrics 0.1mg/kg IV or 0.5mg/kg by mouth (P.O.) up to 15mg for P.O. dose. ** allow 15-20 minutes for effect after P.O. dose. Geriatric and debilitated patients should receive 0.05-0.1mg/kg IV slowly.

- Ativan: Adults 0.06mg/kg IV total dose. Pediatric NOT recommended. Geriatric patients over the age of 50 should not exceed 2mg IV total dose.

- Dilaudid: Adult slow IV 0.5-2mg (2-4mg). Pediatrics NOT recommended. Decrease dose 33-50% in elderly, hypovolemic, or with concomitant use of other narcotics or CNS depressants.

- Diazepam: Adults: 0.25mg/kg (up to 15 mg total dose). Pediatric 0.1-0.15mg/kg IV very slowly (total dose). Geriatric doses should be decreased 25-50% of Adult dose. **extreme caution in patients with severe renal disease.

Reversal Agents and Dosages:

- Narcan: Adults: 0.1-0.2mg IV every 2-3 minutes to 1.0mg (total **dose).** Children 0.1mg/kg. Neonates 0.01mg/kg.
- Romazicon: 0.2-1mg at 0.2mg/min Maximum of 3mg/hr. Total Maximum dose 5mg. Not recommended for children or patients with a history of seizure disorder.

PROCEDURE:

1. Only Qualified Individuals may administer procedural sedation: It is not always possible to predict how an individual patient will respond to sedation medications. Sedation to anesthesia is a continuum, not specific events. Therefore, qualified individuals are trained in professional standards and techniques regarding pharmacologic agents and monitoring of patients to maintain the patient at the **desired** level of sedation. It is within the scope of practice for RNs to administer Propofol.

Qualified Individuals include:

- Physicians
- Physicians Assistants
- Nurse Practitioners
- Certified Registered Nurse Anesthetists
- Registered Nurses with 12-month competency review of Procedural Sedation and current BLS, ACLS, and PALS certifications

Individuals who administer procedural sedation have appropriate credentials or competencies to manage patients at whatever level of sedation is achieved, either intentionally or unintentionally. Competency-based credentialing includes the following criteria:

- Evaluation of patients prior to performing moderate or deep sedation.

- Administration of pharmacologic agents to predicable desired levels of sedation
- Monitoring of patients to maintain desired level of sedation
- Practitioners who have appropriate credentials are permitted to administer procedural sedation and are qualified to rescue patients from deep sedation and are competent to manage a compromised airway and provide adequate oxygenation and ventilation.

2.. The Pre-Sedation Assessment is performed and documented for each patient prior to the beginning of sedation (see Nursing Checklist). The assessment consists of data collected from other assessments and status including:

- A current history and physical (within seven days) or progress note performed by a medical provider including age, review of systems, level of consciousness, medications, and adverse or allergic drug reactions.
- Laboratory and/or diagnostic results, if applicable.
- NPO status
- Informed consent, procedural consent, and sedation consent.
- Initial assessment including but not limited to: BP, HR, RR, 02 saturations, LOC (level of consciousness), and baseline Aldrete Score (see Nursing Flowsheet).
- Pregnancy status (if applicable)
- Assignment of ASA category by the medical provider (see Provider Flowsheet).
- Responsible adult driver for patient to be discharged to post-recovery

3. Procedural sedation is planned and individualized for each patient, as evidenced by:

- Documentation of pre-sedation assessment in the medical record.
- Documentation of sedation plan in the medical record.

4. Risks of sedation are discussed with the patient or guardian prior to administration, with documentation in the medical record of the discussion of risk, benefits, alternative treatments, and possible outcomes if procedure is not done.

5. Enough qualified personnel will be available for appropriate patient evaluation prior to the administration of sedation and for intra-procedure monitoring:

- The Medical Provider
- A qualified RN must always be with the patient and may not engage in any task that might compromise continuous monitoring during the procedure
- A Respiratory Therapist must be with the patient during the entire procedure as well as After Procedure monitoring and documentation:
  - Continuous monitoring of Pulse Ox, BP, HR, RR, EKG, ET CO_2, Aldrete Score documented on Nursing Flowsheet:
    1) Before sedation
    2) Every 5 minutes during sedation (more frequently depending on

patient's health status and level of sedation)
3) Every 15 minutes and prior to discharge

- Patient's position and attention to pressure points

The Physician and RN must be aware of desirable and undesirable effects from Sedation/Analgesia:

- Desirable:
  a. Intact protective reflexes
  b. Relaxation
  c. Cooperation
  d. Diminished verbal communication and easy arousal from sedation
- Undesirable:
  a. Nystagmus
  b. Slurred speech
  c. Unarousable sleep
  d. Hypotension
  e. Agitation
  f. Combativeness
  g. Hypoventilation
  h. Respiratory depression
  i. **Airway** obstruction
  j. Apnea

Post Procedure Monitoring:

- Post procedure monitoring is 1:1 until Aldrete score is 8 or higher (or there is a variance of no more than one from baseline score}. See attached for **Aldrete** table.
- Monitoring includes BP, HR, and 02 saturation at least every 15 minutes:
  a. EKG rhythm is continuously monitored during the recovery period.
  b. LOC, Aldrete score on admission, every 15 minutes, and upon discharge.

The patient may be discharged from the area when this criterion is met. Patient who do not achieve an Aldrete score of 8 or greater **will be** evaluated by a medical provider.

6. Appropriate equipment for care and resuscitation is available as follows:
   - Blood Pressure
   - Pulse Oximetry
   - Heart Rate via continuous EKG monitoring
   - Sufficient lighting for monitoring respiratory rate and adequacy of ventilation
   - Oxygen delivery equipment, including nasal cannula or face tent, bag-valve-mask device, oxygen source, intubation equipment
   - Suction equipment

- Sedation/Anesthesia medication
- Reversal agents for sedation/anesthesia medication are immediately available
- Crash Cart
- ET CO_2 monitor

7. Post-procedure status of the patient is assessed on admission to and before discharge from the clinical area.

8. Patients are discharged according to specific discharge criteria (the Aldrete score system approved by the Medical Staff) from the clinical area.

Patients receiving reversal agents may require additional recovery time.

9. Prior to discharge the last sedative or narcotic analgesia dose will have been administered at least 30 minutes prior to discharge and at least 2 hours have elapsed prior to discharge if reversal agents have been administered. Patient will also have a minimal of three (3) consecutive stable sets of vital signs prior to discharge as well.
    - The medical provider is responsible for determining final patient disposition post-procedure.
    - Discharge education for those patients discharged post procedure (outpatients) will include written form:
        a. No driving until the following day
        b. Avoid operating complex or heavy equipment until the following day
        c. No cooking until the following day
        d. Follow-up phone number for call back if necessary
        e. Procedure specific instructions
        f. Adverse signs/symptoms to look for as to when to return to the hospital ED
        g. Must follow-up with their Primary Care Provider within 1 - 2 days
    - Reporting of Adverse Drug Reactions

All cases in which the following events occur must be reported by submitting the Adverse Drug Reaction Notice to the Director of Pharmacy:

a. Whenever a reversal agent is administered
b. Whenever assisted agent is administered
c. Whenever there is an unanticipated hospital admission or increased level of care

- A nurse will call and follow-up with the patient within 24 hours after discharge and document.

Aldrete Score

CRITERIA		SCORE
ACTIVITY	Able to move four extremities voluntarily or on command	2
	Able to move two extremities voluntarily or on command	1
	Unable to move any extremities voluntarily or on command	0
RESPIRATION	Able to breathe deeply and cough freely	2
	Dyspneic or with limited breathing	1
	Apneic	0
CIRCULATION	BP OR HR+ or - 20% of pre-anesthetic level	2
	BP or HR+ or - 21% to 49% of pre-anesthetic level	1
	BP or HR + or - 50% of pre-anesthetic level	0
CONSCIOUSNESS	Fully Awake	2
	Arousable on calling	1
	Not responding	0
OXYGEN SATURATION	Able to maintain 02 saturation >92%	2
	Needs 02 inhalation to maintain 02 saturation >90%	1
	02 saturation <90% even with 02 supplement	0

NOTE: Discharge can occur when Aldrete score is 8 or higher. Score below 8 follow policy

References for Policy

American Society of Anesthesiologists (2021). *Statement on granting privileges for administration of moderate sedation to practitioners who are not anesthesia professionals*. https://www.asahq.org/standards-and-practice-parameters/statement-on-granting-privileges-for-administration-of-moderate-sedation-to-practitioners-who-are-not-anesthesia-professionals

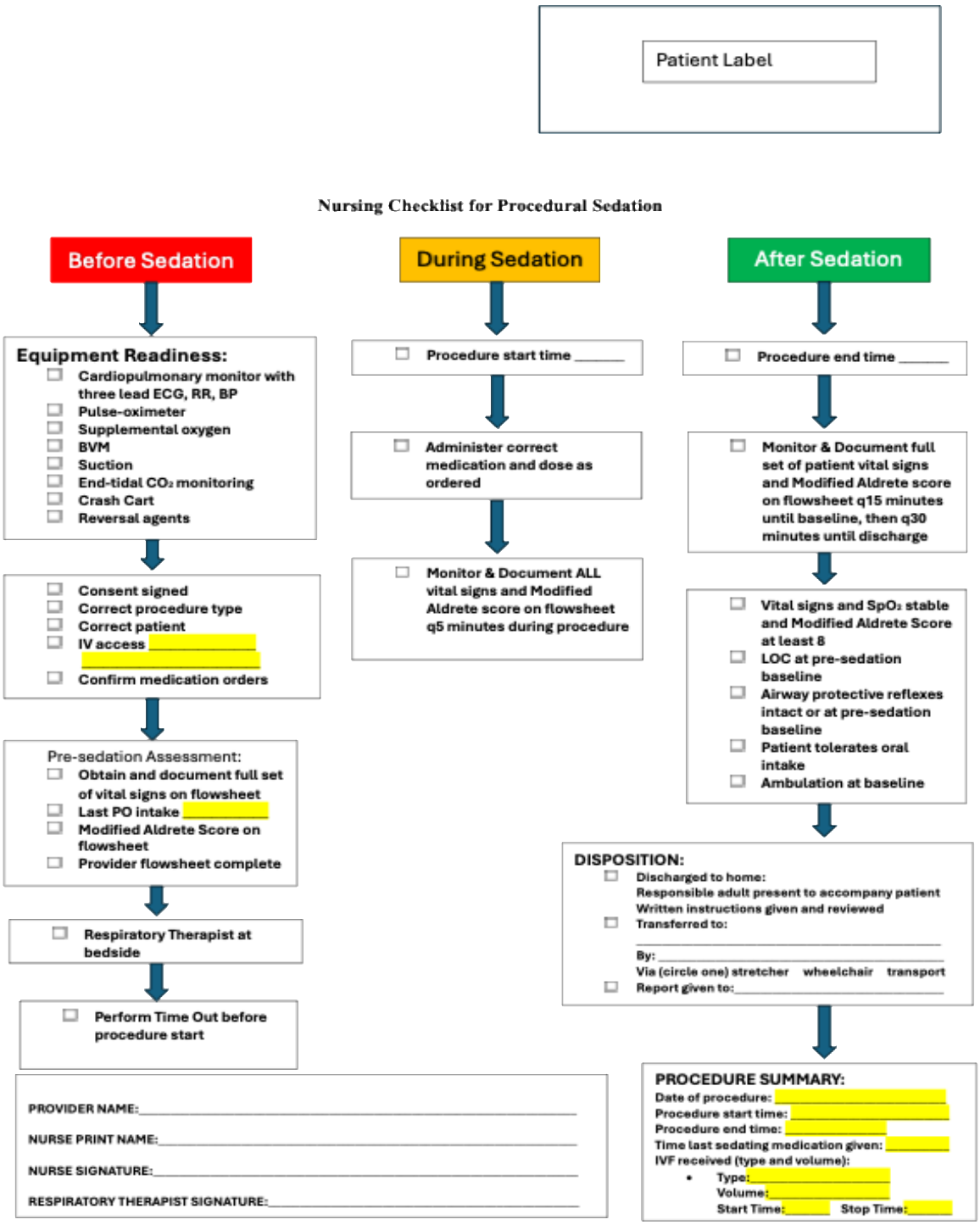
Benzoni, T., Agarwai, A., & Cascella, M. (2025). Procedural sedation. *National Library of Medicine, National Institutes of Health.* *https://www.ncbi.nlm.nih.gov/books/NBK551685/*

Chang, P. & Elias, T. (2022). Open airway procedural sedation. *National Library of Medicine, National Institutes of Health.* *https://www.ncbi.nlm.nih.gov/books/NBK574521/*

North Carolina Board of Nursing (n.d.). *Procedural sedation/analgesia position statement for RN practice.* https://www.ncbon.com/sites/default/files/documents/2024-03/ps-procedural-sedation-analgesia.pdf

Raffay, V., Fišer, Z., Samara, E., Magounaki, K., Chatzis, D., Mavrovounis, G., Mermiri, M., Žunić, F., & Pantazopoulos, I. (2020). Challenges in procedural sedation and analgesia in the emergency department. *Journal of Emergency and Critical Care Medicine*, *8*, 27–27. https://doi.org/10.21037/jeccm-19-212

Appendix F
Nursing Checklist for Procedural Sedation



Appendix G
Nursing Flowsheet

Patient Label

Nursing Flowsheet for Procedural Sedation/Post-Procedure

TIME	BP	HR	RR	RESPIRATORY EFFORT QUALITY	SpO_2	OXYGEN (L/min)	LOC	Modified Aldrete Score	MEDICATION AND DOSE	COMMENTS (i.e. Apnea >15 seconds Intubation or BMV Desaturation Vomiting)	INITIALS

MODIFIED ALDRETE SCORE

ACTIVITY	
Able to move four extremities voluntarily on command	2
Able to move two extremities voluntarily on command	1
Unable to move	0
RESPIRATORY	
Able to breathe deeply and cough freely	2
Dyspnea or limited breathing	1
Apnea	0
CIRCULATION	
BP and HR ± 20% of pre-sedation level	2
BP and HR ± 20-50% of pre-sedation level	1
BP and HR ± 50% of pre-sedation level	0
CONSCIOUSNESS	
Fully awake and able to answer questions	2
Arousable only to voice	1
Unresponsive	0
OXYGENATION	
SpO_2 >90% on room air	2
Requires supplemental oxygen to maintain SpO_2 >90%	1
SpO_2 <90% despite supplemental oxygen	0

RESPIRATORY EFFORT QUALITY

N=NORMAL L=LABORED
S=SHALLOW R=REGULAR

LOC SCALE

5 = AWAKE AND ALERT
4 = SLEEPING INTERMITTENTLY
3 = ASLEEP BUT RESPONDS TO VOICE
2 = RESPONDS TO PAINFUL STIMULI
1 = UNRESPONSIVE

Nurse Signature:______________________________
Post-procedure Nurse (if applicable):______________________________
RT Signature:______________________________
Date:______________________________