

# Actionable Patient Safety Solutions™ (APSS™): Moderate Sedation

## How to use this guide

This APSS provides evidence-based actions and resources for executives, leaders, clinicians, and performance improvement specialists. This document is intended to be used as a guide for healthcare organizations to examine their own workflows, identify practice gaps, and implement improvements. In it, you'll find:

**Best Practice Summary:** A high level summary of evidence-based, clinical best practices. (page 2)

**Executive Summary:** Executives should understand the breadth of the problem and its clinical and financial implications. (page 2)

**Leadership Checklist:** This section is for senior leaders to understand common patient safety problems and their implications related to moderate sedation. Most preventable medical harm occurs due to system defects rather than individual mistakes. Leaders can use this checklist to assess whether best practices are being followed and whether action is needed in their organization around moderate sedation. (page 3)

**Clinical Workflow:** This section includes more specific information about moderate sedation across the continuum of care. Leaders should include the people doing the work in improving the work. This section outlines what should be happening on the frontline. Clinicians can use this section to inform leaders whether there are gaps and variations in current processes. This is presented as an infographic that can be used for display in a clinical area. (page 5)

**Education for Patients and Family Members:** This section outlines what frontline healthcare professionals should be teaching patients and family members about moderate sedation. Clinicians can inform leaders whether there are gaps and variations in the current educational processes. (page 7)

**Performance Improvement Plan:** If it has been determined that there are gaps in current practice, this section can be used by organizational teams to guide them through an improvement project. (page 7)

**What We Know about Moderate Sedation:** This section provides additional detailed information about moderate sedation. (page 11)

**Resources:** This section includes helpful links to free resources from other groups working to improve patient safety. (page 12)

**Endnotes:** This section includes the conflict of interest statement, workgroup member list, and references. (page 13)

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# Best Practice Summary

## Preoperative Care

- Provide education to patients and family members as early as possible regarding their role in preparing for surgery.
- Perform pre-operative assessment of the patient, including, but not limited to, confirming the procedure to be completed, recording baseline vital signs, understanding the patient's current medications, and identifying patients with obstructive sleep apnea.
- Determine the appropriate team members needed for a safe surgery.
- Ensure equipment is available and functioning.

## Perioperative

- Prioritize monitoring respiration with capnography and oximetry.
- Set actionable alarms tailored to the individual patient.
- Use a checklist before the surgery to ensure all patient details have been considered.
- Monitor and maintain the airway.

## Postoperative Care

- Ensure discharge criteria are met.
- Provide clear discharge instructions to the patient and family members, including signs and symptoms that may indicate a problem.

# Executive Summary

## The Problem

Patients undergoing moderate sedation are at risk for oversedation, hypoxemia, respiratory depression, reversal agent side effects, intubation, cardiac arrest, and death ([Karmanov et al., 2017](#)). In patients receiving moderate sedation, 1 in 327,684 die, 1.7-4.7% suffer hypoxemia, and 0.13-0.2% experience oversedation ([Mortazavi et al., 2017](#); [ASA, 2018](#)). Clinical studies have shown that oversedation directly contributes to the incidence of respiratory depression ([Becker & Haas, 2007](#)), need for emergency intubation ([Roppolo & Wigginton, 2010](#)), and pneumonia ([Komiya et al., 2016](#)).

## The Cost

Oversedation, hypoxemia, and aspiration are among the most common adverse events associated with moderate sedation and often require the use of unplanned interventions including reversal agents and bag-mask ventilation or endotracheal intubation, which are costly and labor-intensive. In addition, malpractice claims for these complications are costly, averaging \$99,754 annually for endoscopies alone ([Stone et al., 2018](#)).

## The Solution

Many healthcare organizations have successfully implemented and sustained improvements and reduced harm and death in patients requiring sedation. This document provides a blueprint that outlines the actionable steps organizations should take to successfully improve outcomes for patients undergoing moderate sedation and summarizes the available evidence-

based practice protocols. This document is revised annually and is always available free of charge on our website.

## Leadership Checklist

Use this checklist as a guide to determine whether current evidence-based guidelines are being followed in your organization:

### Standardize expectations.

- Ensure frontline involvement in moderate sedation improvement activities. Maintain their engagement and remove barriers to progress.
- Ensure that moderate sedation protocols are embedded into [clinical workflows](#), whether electronic or paper.
- Assess variations in adherence to best practice. See [Appendix A](#) for assessment tools.
- Standardize use of laboratory testing preoperatively ([ASA, 2018](#); [Smetana & Macpherson, 2003](#)).
- Ensure the risk assessment used in the organization includes all relevant information ([ASA, 2012](#)).
- Standardize a checklist to ensure minimum requirements for the procedure are available.
- Implement standard withdrawal of oxygen trials in the PACU to ensure patients meet discharge criteria.
- Standardize postoperative opioid order sets.

### Minimize variation in processes.

- Examine the organizational information exchange process from assessment to procedure to ensure information is reliably transferred.
- Involve those scheduling procedures in ensuring personnel and equipment will be available at the time of the procedure.
- Define patient selection for appropriate settings (e.g., who needs to go to hospital versus who can go to an office). Use the STOP BANG score (or other OSA scores) to inform where the procedure should be conducted.
- Consider redefining respiratory alarm thresholds during high risk procedural sedation to enhance early warning.
- Make the information from the preprocedural assessment as easily accessible in the documentation/EHR as possible.
- Audit resources, equipment, and competencies regularly.

### Routinely assess competence and follow best practice.

- Ensure adequate training and documentation of moderate sedation, airway management, and emergency resuscitation competencies and skills. See [Appendix B](#) for competencies.
- Follow best practice intraoperative and postoperative monitoring requirements as defined by leading organizations such as the [Association of Anaesthetists of Great Britain and Ireland](#), [American Society of Anesthesiologists](#), American Association of Nurse Anesthesiology and the [World Health Organization/World Federation of Societies of Anaesthesiologists](#).

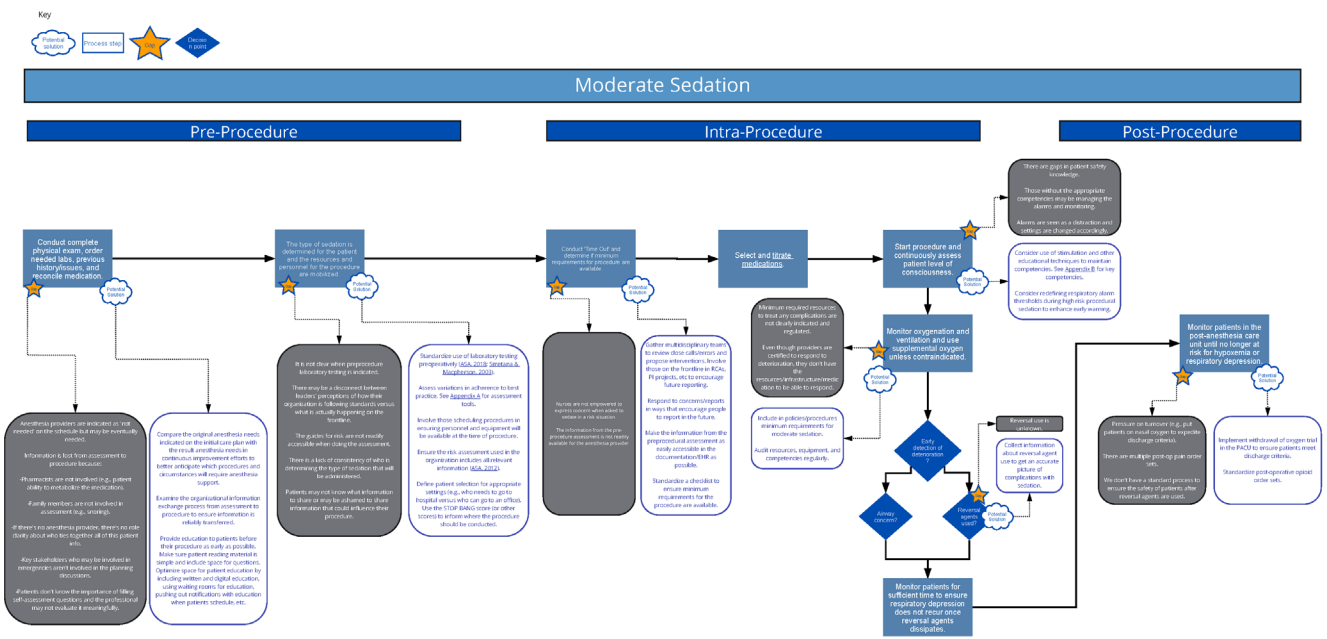
- Include in policies/procedures minimum requirements for moderate sedation.
- Consider the use of simulation and other educational techniques to maintain competencies. See [Appendix B](#) for key competencies.

### Allocate the appropriate time and resources.

- Ensure there are adequate staffing levels to ensure that one staff member can monitor the patient uninterrupted throughout the entire procedure and someone to care for the patient upon recovery.
- Eliminate barriers to making rapid changes to documentation templates and order sets.
- Debrief on a regular basis to solicit team feedback about barriers to sustained compliance. Adjust the plan quickly and nimbly as needed.
- Hold staff accountable for providing the standard of care and reward success.
- Ensure that leaders have a simple process to oversee moderate sedation improvement work while also considering how it aligns with other initiatives across the organization.

### Measure processes and engage those on the frontline in sustaining best practices.

- Compare the original anesthesia needs indicated on the initial care plan with the resulting anesthesia needs in continuous improvement efforts to better anticipate which procedures and circumstances will require anesthesia support.
- Collect information about reversal agent use to obtain accurate knowledge of complications with sedation and side effects of reversal agents.
- Gather multidisciplinary teams to review close calls/errors and propose interventions. Involve those on the frontline in root cause analyses and performance improvement projects to encourage future reporting.
- Respond to concerns/reports in ways that encourage people to report in the future.



**Examples of potential solutions. Click [here](#) to expand. Ensure solutions are only determined after a thorough review of current state, process mapping, and gaps analysis.**

# Clinical Workflow

## 1. PREOPERATIVE CARE

Provide education to patients before their procedure as early as possible. Make sure patient reading material is simple and include space for questions. Optimize space for patient education by including written and digital education, using waiting rooms for education, pushing out notifications with education when patients are scheduled, etc.

Assess the patient prior to the procedure to determine the need for and type of sedation:

- Verify procedure to be completed
- Confirm informed consent.
- Verify escort is present.
- Collect medical/dental history, assess family history, and order necessary preoperative labs such as CXR, ECG, CBC, electrolyte panel, coagulopathy tests, UA, pulmonary function test, ECHO, etc.
- Perform review of systems and physical assessment. Document breathing pattern and survey the skin color.
- Record vital signs
- Document ASA classification

Once screened,

- Determine if an anesthesia provider is needed for the administration of sedation or if it is safe for a nurse who is trained to administer the sedation.
- Patients with comorbidities of cardiac, pulmonary, renal, or hepatic disease are at high risk for complications and an anesthesia provider should be considered.
- Patients who have a history of substance abuse are at high risk for complications and an anesthesia provider should be considered.
- If propofol administration is planned, an anesthesia provider must be administering the anesthesia.

### **Perioperative**

- Confirm NPO and pre-medication status.
- Place appropriate monitors on the patient and set audible alarms. Record data and report to the surgeon.
- Continuously monitor respiratory rate, heart rate, blood pressure, oxygen saturation, and level of consciousness at a minimum.
- Monitor and maintain the airway:
  - Identify routine airway equipment.
  - Apply nasal cannula or nasal hood/mask.

- o Assist with airway adjuncts as necessary.
- Check anesthesia equipment (emergency airway equipment, daily anesthetic gases, reversal agents, etc).
- Administer sedatives slowly and allow time for the medication's effects to work.
- Document on the anesthesia/procedure record.
- Observe air exchange (breathing).
- Continuously review and record data from monitors during the procedure (e.g., blood pressure, pulse oximeter, capnography, etc).
- Complete postoperative monitoring (e.g., continuous postoperative monitoring of vital signs, continuation of monitoring after reversal agents administered, etc).
- Complete postoperative record keeping.
- Record any controlled substances dispensed or prescribed.



## 2. POSTOPERATIVE CARE

- Give a report to the nurse who will continue to monitor the patient and provide postoperative care.
- Give discharge instructions to the patient and family.
- Encourage the patient and/or family to bring the patient to the emergency room if the patient becomes obtunded, unresponsive or lethargic from pain medications.
- Determine discharge criteria are met using [Aldrete Score](#) and/or [PADSS](#).
- Ensure patients being discharged on oxygen who did not require oxygen before the pre-sedated procedure are discharged with home monitoring. Other high-risk patient indicators for consideration of delayed discharge or discharge with home monitoring as described above includes but is not limited to:
  - o Prolonged recovery time (> 90 minutes)
  - o Polypharmacy discharge with multiple CNS depressing agents (e.g., opioids, benzos, antiemetics).
  - o STOPBANG > 5 (no previous sleep study, or no home use of CPAP, bi-level, or autotitrator)
  - o Previous diagnosis of OSA but patient is non-compliant with CPAP or bi-level ordered therapy or not yet ordered on CPAP therapy.
  - o Patient requiring CPAP, bi-level or auto-titrate in PACU or on a patient care floor who were not using at home prior to the procedure
  - o Recurrent respiratory event (Non-stimulated patient - defined as > 2 events during Phase 2 recovery):
    - ◊ Repeated occurrence of oxygen saturation < 90%

- ◇ Bradypnea < 8 breaths/minute
- ◇ Apnea > 10 seconds
- ◇ Pain mismatch (high pain and sedation scores concurrently)
- ◇ Patient requiring supplemental oxygen but did not pre-procedure/pre-hospital admission
- For more information, see [ASA's Recovery and Discharge Criteria after Sedation and Analgesia](#).

## Education for Patients and Family Members

The outline below illustrates all of the information that should be conveyed to the patient and family members by someone on the care team in a consistent and understandable manner. Patients and family members should understand:

- The purpose of moderate sedation and why it is needed
- Risks, benefits, and alternatives for moderate sedation during the procedure
- Side effects of moderate sedation
- The patient's specific moderate sedation risks
- The purpose and details about the consent form
- How to prepare for moderate sedation
- What to expect after moderate sedation
- Things the organization is doing to prevent harm and death from moderate sedation

See Johns Hopkins "[Procedural Sedation](#)" for more information for patients and family members.

## Performance Improvement Plan

Follow this checklist if the leadership team has determined that a performance improvement project is necessary:

- Gather the right project team.** Be sure to involve the right people on the team. You'll want two teams: an oversight team that is broad in scope, has 10-15 members, and includes the executive sponsor to validate outcomes, remove barriers, and facilitate spread. The actual project team consists of 5-7 representatives who are most impacted by the process. Whether a discipline should be on the advisory team or the project team depends upon the needs of the organization. Patients and family members should be involved in all improvement projects, as there are many ways they can contribute to safer care.

### Complete this Lean Improvement Activity:



Conduct a [SIPOC](#) analysis to understand the current state and scope of the problem. A SIPOC is a lean improvement tool that helps leaders to carefully consider everyone who may be touched by a process, and therefore, should have input on future process design.

## RECOMMENDED MODERATE SEDATION IMPROVEMENT TEAM

- Anesthesiologists
- Nurse Anesthetists
- Surgeons
- Dental professionals
- Nurses
- Nursing assistants
- Critical care experts
- Admitting and registration staff
- Pharmacists
- Quality and safety specialists
- Rapid response team members
- Respiratory therapists
- Risk department/legal experts
- Those making purchasing decisions for the organization
- Related committees (e.g., sedation committee)
- Supply chain personnel
- Information technologists
- Data analysts

Table 1: Understanding the necessary disciplines for a moderate sedation improvement team. Team members should include representatives from the setting of interest and the relevant continuum of care.

- Understand what is currently happening and why.** Reviewing objective data and trends is a good place to start to understand the current state, and teams should spend a good amount of time analyzing data (and validating the sources), but the most important action here is to go to the point of care and observe. Even if team members work in the area daily, examining existing processes from every angle is generally an eye-opening experience. The team should ask questions of the frontline during the observations that allow them to understand each step in the process and identify the people, supplies, or other resources needed to improve patient outcomes.

Create a [process map](#) once the workflows are well understood that illustrates each step and the best practice gaps the team has identified ([IHI, 2015](#)). Brainstorm with the advisory team to understand why the gaps exist, using whichever [root cause analysis tool](#) your organization is accustomed to ([IHI, 2019](#)). Review the map with the advisory team and invite the frontline to validate accuracy.



## MODERATE SEDATION PROCESSES TO CONSIDER ASSESSING

- Pre-operative equipment check
- Information transfer/exchange from assessment to procedure
- Discussions with the patient and family members preoperatively and postoperatively
- Risk assessment
- Setting and changes on monitors/alarms
- Response to alarms
- Monitoring process
- Frequency of vital sign assessment
- Frequency of assessment of patient reaction to physical or verbal stimuli
- Proximity of emergency equipment
- Activation of emergency response teams
- Availability of intubation supplies (endotracheal tube, laryngoscope blade and handle)
- Availability and understanding of reversal agents
- Availability of different types of supplemental oxygen

Table 2: Consider assessing these processes to understand where the barriers contributing to poor moderate sedation may be in your organization



- **Prioritize the gaps to be addressed and develop an action plan.** Consider the cost effectiveness, time, potential outcomes, and realistic possibilities of each gap identified. Determine which are priorities of focus for the organization. Be sure the advisory team supports moving forward with the project plan so they can continue to remove barriers. Design an experiment to be trialed in one small area for a short period of time and create an action plan for implementation.

**The action plan should include the following:**

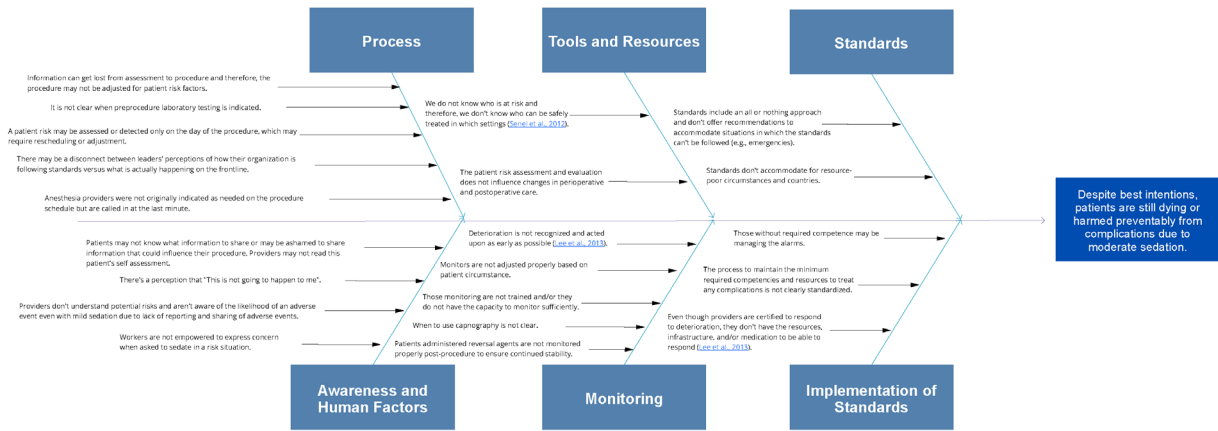


- Assess the ability of the culture to change and adopt appropriate strategies
- Revise policies and procedures
- Redesign forms and electronic record pages
- Clarify patient and family education sources and content
- Create a plan for changing documentation forms and systems
- Develop the communication plan
- Design the education plan
- Clarify how and when people will be held accountable

**TYPICAL GAPS IDENTIFIED IN MODERATE SEDATION**

- Anesthesia providers are indicated as 'not needed' on the schedule but may be urgently needed when they become unstable.
- Information is lost from assessment to procedure.
- Patients don't know the importance of filling self-assessment questions and the professional may not evaluate it meaningfully.
- It is not clear when preprocedure laboratory testing is indicated.
- There may be a disconnect between leaders' perceptions of how their organization is following standards versus what is actually happening on the frontline.
- The guides for risk assessment are not readily accessible when doing the assessment.
- There is a lack of consistency of who is determining the type of sedation that will be administered.
- Patients may not know what information to share or may be ashamed to share information that could influence their procedure.
- Nurses are not empowered to express concern when asked to sedate in at-risk situations.
- The information from the pre-procedure assessment is not readily available for the anesthesia provider.
- Minimum required resources to treat any complications are not clearly indicated and regulated.
- Even though providers are certified to respond to deterioration, they don't have the resources/infrastructure/medications to be able to respond.
- Those without the appropriate competencies may be managing the alarms and monitoring the patient.
- Alarms are seen as a distraction and settings are changed accordingly.
- Knowledge of reversal agents is unknown.
- There is pressure on turnover (e.g., put patients on nasal oxygen to expedite discharge criteria).
- There are multiple post-operative pain order sets.

*Table 3: By identifying the gaps in moderate sedation compliance, organizations can tailor their project improvement efforts more effectively*



Click [here](#) for an example root cause analysis.

- Evaluate outcomes, celebrate wins, and adjust the plan when necessary.** Measure both process and outcome metrics. Outcome metrics include the rates outlined in the leadership checklist. Process metrics will depend upon the workflow you are trying to improve and are generally expressed in terms of compliance with workflow changes. Compare your outcomes against other related metrics your organization is tracking. Routinely review all metrics and trends with both the advisory and project teams and discuss what is going well and what is not and needs to be changed. Identify barriers to completion of action plans, and adjust the plan if necessary. Once you have the desired outcomes in the trial area, consider spreading to other areas ([IHI, 2006](#)). It is important to be nimble and move quickly to keep team momentum going so that people can see the results of their labor. At the same time, don't move so quickly that you don't consider the larger, organizational ramifications of a change in your plan. Be sure to have a good understanding of the other, similar improvement projects that are taking place so that your efforts are not duplicated or inefficient.

[Read this paper](#) from the Institute for Healthcare Improvement to understand how small local steps

## MODERATE SEDATION METRICS TO CONSIDER ASSESSING

- Number of patients who were considered for delayed discharge or discharge with home monitoring upon detection of high risk patient indicators such as:
  - Prolonged recovery time (> 90 minutes)
  - Polypharmacy discharge with multiple CNS depression agents (e.g., opioids, benzodiazepines, antiemetics).
  - STOPBANG > 5 (no previous sleep study, or no home use of CPAP, bi-level, or autotitrator)
  - Previous diagnosis of OSA or patient is non-compliant with CPAP or bi-level ordered therapy or has not yet been ordered on CPAP therapy
  - Patient requiring CPAP, bi-level or auto-titrate in PACU or on a patient care floor and who were not using CPAP at home prior to the procedure
  - Recurrent respiratory event (Non-stimulated patient - defined as > 2 events during Phase 2 recovery):
    - ◊ Repeated occurrence of oxygen saturation < 90%
    - ◊ Bradypnea < 8 breaths/minute
    - ◊ Apnea > 10 seconds
    - ◊ Pain mismatch (high pain and sedation scores concurrently)
    - ◊ Patient requiring supplemental oxygen but did not need oxygen pre-procedure/pre-hospital admission
- Number of moderate sedation procedures with completed preoperative checklists
- Number of adverse events
- Activation of the emergency response team
- Use of supplemental oxygen
- Post-moderate sedation critical care transfers
- Use of reversal agents
- Interruptions of the individual assigned to monitor the patient

Table 4: Consider evaluating related metrics to better understand moderate sedation presence and contributing factors

## What We Know About Moderate Sedation

Moderate sedation, or non-anesthesia provider procedural sedation and analgesia, is a drug-induced conscious sedation in which patients respond purposefully to verbal commands, do not require airway management, and will maintain spontaneous ventilation and adequate cardiovascular function. Purposeful response does not include reflex withdrawal from a painful stimulus ([ASA, 2019](#)).

This document will focus on the “moderate sedation/analgesia/conscious sedation” level of sedation on the sedation continuum.

The [American Society of Anesthesiologists](#) defines the continuum of depth of sedation as follows:

	MINIMAL SEDATION ANXIOLYSIS	MODERATE SEDATION/ ANALGESIA ("CONSCIOUS SEDATION")	DEEP SEDATION / ANALGESIA	GENERAL ANESTHESIA
<b>Responsiveness</b>	Normal response to verbal stimulation	Purposeful** response to verbal or tactile stimulation	Purposeful** response following repeated or painful stimulation	Unarousable even with painful stimulus
<b>Airway</b>	Unaffected	No intervention required	Intervention may be required	Intervention often required
<b>Spontaneous Ventilation</b>	Unaffected	Adequate	May be inadequate	Frequently inadequate
<b>Cardiovascular Function</b>	Unaffected	Unusually maintained	Usually maintained	May be impaired

It is important to recognize that anesthesia administration exists on a continuum and, therefore, providers who administer anesthesia must be competent in monitoring and resuscitation if the individual's sedation level is deeper than intended. This requires proficiency in airway management and advanced life support ([ASA, 2019](#)). Non-anesthesia professionals are becoming increasingly involved in the administration of moderate sedation due to cost-containment efforts and reallocation of resources. Providers should be competent in patient pre-sedation assessment and evaluation, patient education, cardiovascular monitoring, drug selection and administration, management of potential adverse reactions, post-sedation recovery, and appropriate use of technology ([AANA, 2016](#)).

According to the American Association of Moderate Sedation Nurses, "Certified Registered Nurse Anesthetists (CRNAs), anesthesiologists, other physicians, dentists, and oral surgeons are qualified providers of moderate sedation. Specifically trained Registered Nurses may assist in the administration of moderate sedation" ([AAMSN, 2020](#)).

## Resources

### For Moderate Sedation Improvement:



- [American Association of Nurse Anesthetists: Non-Anesthesia Provider Procedural Sedation and Analgesia](#)
- [The Joint Commission: Speak Up Anesthesia Infographic](#)
- [VA National Center for Patient Safety: Moderate Sedation Toolkit for Non-Anesthesiologists](#)
- [The Joint Commission: Characteristics of Reported Adverse Events During Moderate Procedural Sedation: An Update](#)
- [American Society of Anesthesiologists: Practice Guidelines for Moderate Procedural Sedation and Analgesia 2018](#)
- [Guideline for Care of the Patient Receiving Moderate Sedation/Analgesia Evidence Table](#)
- [Does your moderate sedation program measure up to the standards?](#)
- [Outpatient anesthesia morbidity and mortality experience among Massachusetts oral and maxillofacial surgeons](#)
- [Monitoring and delivery of sedation](#)
- [Moderate Procedural Sedation \(Adult\): Self Learning Packet for Licensed Independent Practitioners \(LIP\)](#)
- [Safe Sedation Practice for Healthcare Procedures Standards and Guidance](#)
- [Mortality and Morbidity in Office-Based General Anesthesia for Dentistry in Ontario](#)
- [Procedural Sedation: Continuing Education Activity](#)
- [Moderate Sedation Toolkit for Non-Anesthesiologists](#)
- [AORN: Moderate Sedation Guidelines](#)
- [Guideline Implementation: Moderate Sedation/Analgesia](#)
- [Conscious Sedation Quick Workflow](#)
- [Patient Satisfaction and Understanding of Moderate Sedation During Endoscopy](#)

## For General Improvement:

- [CMS: Hospital Improvement Innovation Networks](#)
- [IHI: A Framework for the Spread of Innovation](#)
- [The Joint Commission: Leaders Facilitating Change Workshop](#)
- [IHI: Quality Improvement Essentials Toolkit](#)
- [SIPOC Example and Template for Download](#)
- [SIPOC Description and Example](#)

# Endnotes

## Conflicts of Interest Disclosure

The Patient Safety Movement Foundation partners with as many stakeholders as possible to focus on how to address patient safety challenges. The recommendations in the APSS are developed by workgroups that may include patient safety experts, healthcare technology professionals, hospital leaders, patient advocates, and medical technology industry volunteers. Workgroup members are required to disclose any potential conflicts of interest.

## Workgroup

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## Appendices

### Appendix A: Assessment of Variation in Adherence to Best Practices

#### Example Electronic/EMR-Based Solutions:

- Trigger tools, retrospective detection
  - Transfer to ER
  - Unplanned hospitalization
  - Emergency intubation
  - Use of reversal agents
  - Unanticipated complications
  - Equipment malfunction
- Billing records
  - Ordering of preoperative labs
- Pharmacy records
  - Use of reversal agents
- EMR reports
  - Variance from clinical pathways

#### Manual Audits and Direct Observation

- Chart audits/Random case reviews
- Environment of care surveys
- Patient surveys
- Overt/covert observation
- Leadership rounding

#### Self-Surveys

- Consider
  - Office-Based Procedural Accreditation Standards Manual
  - Oral & Maxillofacial Surgery Accreditation Standards Manual
  - International Surgical & Dental Accreditation Standards Manual
  - AAAHC Accreditation Handbook for Ambulatory Care

- o A procedural sedation quality improvement audit form tool for interventional radiology

**Additional Resources for Assessment of Variation and Adherence to Best Practice:**

- Developing a Moderate Sedation Policy: Essential Elements and Evidence-Based Considerations
- Recommendation and protocol compliance: “Yes, I do” may not be true; the complexity of measuring provider adherence
- Safety culture and workforce well-being associations with positive leadership walkrounds
- Safety measurement and monitoring in healthcare: A framework to guide clinical teams and healthcare organisations in maintaining safety

**Appendix B: Competencies**

Qualified individuals conducting sedations must possess education, training, and experience in:

- Evaluating patients prior to moderate or deep sedation
- Rescuing patients who slip into a “deeper than desired” level of sedation or anesthesia
- Managing a compromised airway during a procedure
- Handling a compromised cardiovascular system during a sedated procedure
- Identifying high-risk opioid patients [e.g., STOPBANG score for obstructive sleep apnea, history of opioid use vs opioid naive, ASA Patient Classification, oxygen pre vs post discharge, recurrent events in the unstimulated patient (e.g., RR < 6, SpO2 < 90%, apnea > 10 seconds and pain/sedation mismatch), prolonged recovery (> 90 minutes)]

COMPETENCIES	
<b>Basic</b>	<p>The learner will be able to:</p> <ul style="list-style-type: none"> <li>• Apply knowledge of the basic sciences               <ul style="list-style-type: none"> <li>o Cardiovascular anatomy and physiology</li> <li>o Pulmonary anatomy and physiology</li> <li>o The nervous system</li> <li>o Pharmacology</li> </ul> </li> <li>• List the 5 stages of ASA Patient Classifications.</li> <li>• Screen for obstructive sleep apnea using a screening tool such as STOPBANG.</li> <li>• Discuss the differences between minimal sedation, moderate sedation, deep sedation, and general anesthesia.</li> <li>• Clarify objectives/goals of sedation.</li> <li>• List guidelines for patient care during pre-procedure, intra-procedure, and post-procedure phases of sedation.</li> <li>• List the drugs, routes, and dosages for drugs commonly used in sedation.</li> <li>• Discuss antidotes, dosage, side effects, and indications for commonly used drugs that affect the central nervous system.</li> <li>• Describe signs and symptoms of partial and complete airway obstruction.</li> <li>• Demonstrate interventions to correct partial and complete airway obstruction.</li> <li>• Identify side effects and contraindications to medications that have the potential to suppress a patient’s protective reflexes.</li> <li>• Integrate age-specific principles into care of the pediatric and geriatric patient undergoing sedation.</li> <li>• Document clearly, completely, and according to established standards, policies and instructions.</li> </ul>

	<ul style="list-style-type: none"> <li>• List safety criteria for administering safe sedation.</li> <li>• Describe how to manage complications, which might arise during sedation.</li> <li>• Recognize the patient needs post-procedure for previously diagnosed Obstructive Sleep Apnea.</li> <li>• Recognize the patient needs post-procedure for suspected Obstructive Sleep Apnea (OSA).</li> </ul>
<b>Advanced</b>	<ul style="list-style-type: none"> <li>• As above but in addition, the provider will have documented competency in interventions such as advanced cardiac and respiratory interventions (BLS, ACLS, PALS certifications, procedural sedation training)</li> </ul>

**Additional Resources for Competency Guidance:**

- [Practice Guidelines for Sedation and Analgesia by Non-Anesthesiologists: An Updated Report by the American Society of Anesthesiologists Task Force on Sedation and Analgesia by Non-Anesthesiologists](#)
- [Dental Anesthesia Assistant National Certification Examination \(DAANCE\)](#)
- [Moderate Procedural Sedation \(Adult\): Self Learning Packet for Licensed Independent Practitioners \(LIP\)](#)
- [Initial Competency Assessment for Procedural Sedation](#)
- [Australian and New Zealand College of Anaesthetists: Competencies for administering moderate sedation](#)