Patient Safety Alert

Non-Operating Room Anesthesia Self-Assessment Tool

Introduction

Non-operating room anesthesia (NORA) represents a growing field of practice, with an increase in the number of cases performed over the previous decade. Existing recommendations advise that NORA standards of anesthesia should prioritize patient safety.[1] NORA care is administered in a variety of settings (i.e. Cardiac Catheterization labs, Interventional Radiology suites, among others), with a range of corresponding resources.[2]

The Academic Medical Center Patient Safety Organization (AMC PSO) regularly brings together subject matter experts to examine existing and emerging patient safety risks across a range of topics. In response to a member request, the AMC PSO convened to discuss NORA practices and build consensus on ways to deliver safe, high-quality care in diverse environments.

In preparation, the AMC PSO conducted a literature review. Two documents emerged as particularly relevant and served as the foundation for the AMC PSO's work. The American Society of Anesthesiologists (ASA) statement on NORA services provides a foundation for structure and considerations of NORA settings.[3] The consensus guidance from the Journal of the Anesthesia Patient Safety Foundation (APSF)[4] builds on the ASA statement with more detail and applicability. Both ASA and APSF articles address initial resourcing and setup of NORA settings.

Between November 2023 and March 2024, the AMC PSO assembled a Task Force consisting of frontline nurses, proceduralists, and anesthesiologists who practice in varying adult and pediatric NORA settings. All experts came from organizations with well-established NORA programs. The experts were asked to share both concerns and any best practices for existing NORA settings, as well as to help identify gaps in the existing literature. Nursing concerns highlighted pre-procedure practices and team culture. The subject matter experts expressed concern about the scope and applicability of AMC PSO recommendations, given the large volume of existing literature in this space. This document is not intended to be all-inclusive, but rather to address key gaps in the literature identified by frontline experts.

During the convenings, experts identified several items in the APSF recommendation that were either missing or lacking detail. This document outlines those areas of concern, along with any recommendations provided by the frontline staff convened. It follows the same categorical structure as the APSF documents and uses a self-assessment model to help organizations identify potential gaps and prioritize areas for ongoing work. The goal is for this table to be used alongside existing literature to support risk assessment and strategic focus within NORA settings.

Self-Assessment Table

The NORA self-assessment table below outlines key areas of concern and corresponding mitigation strategies discussed with the frontline clinicians on the task force. Organizations with existing NORA programs can leverage this table as a tool to evaluate safety risks and vulnerabilities. To ensure a thorough evaluation, these discussions should be multidisciplinary and involve frontline stakeholders. Including all NORA settings in these assessments best supports standardization of processes and spread of learnings throughout the organization.

To perform the self-assessment, review each section and select the response that best describes the current state of each NORA clinical care environment. Score each area as follows:

- 0 points - Not yet initiated
- 1 point - Early stages or partial implementation
- 2 points – Areas in progress
- 3 points - Areas of strength where a robust process is in place

Scoring is meant to highlight areas requiring work and focus; lower scores may help to identify areas of greater vulnerability and potential risk, while higher scores highlight areas of importance that have high-quality processes and workflows. Scores may be aggregated within each domain to identify areas in need of the most attention. If work has not been initiated on a topic, it can receive a score of "0".

The domains of "Continuous Quality Improvement" and "Special Considerations" are meant to assess the connectedness of the individual NORA care environments with the hospital system.

	1 Point Early stages/some elements	**2 Points** In Progress	**3 Points** Strong	**Row Score***
Staffing, Teamwork, and Communication				
Clinical care competencies, credentialling, and onboarding • Standardized clinical care competencies with associated timelines for reverification	**Nursing:** standardized onboarding **Physician:** standardized credentialling and variable re-evaluation **Technician:** standardized onboarding OR **Variable for all roles**	**Nursing:** standardized process for onboarding with variable competency reassessment **Physician:** standardized provider credentialling with variable recertification **Technician:** standardized onboarding and variable competency reassessment	**All roles:** standardized process for onboarding, process in place for competency and credentialling recertification, and structured plan for updating existing organizational competencies	

**Of note, a column for a score of 0 is not included in the table but can be recorded as such in the row score column.*

	1 Point Early stages/some elements	2 Points In Progress	3 Points Strong	Row Score
Staffing, Teamwork, and Communication				
Interdisciplinary daily huddles • Huddles include multi-disciplinary team including proceduralist, NORA provider, and nurses	**Interdisciplinary huddles rarely occur**	**Interdisciplinary huddles occur on an ad hoc basis**	**Interdisciplinary huddles occur daily**	
In situ simulation training • Simulations occur with multi-disciplinary teams involved in procedures with NORA	**Simulation training has been developed and is sometimes used**	**Simulation training is used for emergency responses consistently**	**Simulation training is consistently applied for emergency, escalation of concerns, and pre-procedure preparedness**	
New processes and procedures • A defined process is in place for multi-disciplinary assessment of new procedures	**Unclear process for communicating new procedures or workflows**	**A process exists, but it is followed inconsistently for new procedures or processes**	**There is a well-defined and adhered to process for new procedures that is consistently communicated to all stakeholders**	
Pre-procedural Care and Patient Selection				
Defined roles in case selection process • Case selection process has clearly defined roles	**RN performs case selection and does not have a specified procedure for engaging anesthesiologist or proceduralist**	**RN performs case selection and has specified procedures for engaging anesthesiologist and proceduralist**	**RN performs case selection and has guided triggers for engaging anesthesiologist, proceduralist or both**	
Collaborative pre-procedure case reviews • Multi-disciplinary process for proceduralist, RN and anesthesiologist review of case pre-procedure	**Cases are reviewed independently by clinical disciplines for appropriate clinical care location**	**Triage criteria for clinical care locations is developed and selected cases are reviewed collaboratively**	**Triage criteria is consistently applied, and cases are reviewed by multidisciplinary team**	

	1 Point Early stages/some elements	2 Points In Progress	3 Points Strong	Row Score
Pre-procedural Care and Patient Selection				
Case selection for nurse-administered moderate sedation versus anesthesiologist-performed NORA • Clear triage criteria are available and consistently applied to establish cases for RN- versus MD-administered care	**Case selection criteria does not define who will perform sedation versus anesthesia**	**Case selection criteria include inconsistent factors for determining who will perform sedation versus anesthesia**	**Case selection criteria have defined factors for nurse-administered moderate sedation, MD-appropriate NORA and cases requiring multidisciplinary review to select protocol**	
Intra-Procedural Care				
Intra-procedural pre-huddle • Pre-procedure huddles occur with all members of the multi-disciplinary team and includes identification of risk factors and contingency plans that are patient-specific	**Interdisciplinary pre-procedural huddles rarely occur**	**Specific cases involve interdisciplinary huddles that include identification of patient specific risk factors and contingency planning, e.g., bleeding risks**	**Interdisciplinary, pre-procedural huddle includes identification of patient specific risk factors and contingency planning (e.g., bleeding risks)**	
Intra-procedural physiologic monitoring • Physiologic monitoring equipment is readily available, and monitoring triage criteria is consistently applied for appropriate monitoring	**Monitoring triage criteria are inconsistently applied, and type of monitoring equipment is available ad hoc**	**Monitoring triage criteria are inconsistently applied, or monitoring equipment is not consistently available**	**Monitoring triage criteria are consistently applied, and appropriate monitoring equipment are available regularly**	
Intra-procedure lab availability • Intra-procedural labs, such as monitoring of hemoglobin pre-, intra-, and post-procedure, are available	**Workflows for obtaining intra-procedure labs are inconsistent**	**Workflows for obtaining intra-procedure labs are available but inconsistently applied**	**Workflows for obtaining intra-procedure labs are established and reliable**	
Emergency contingency plans • Emergency plans, such as escalation of care for patient deterioration, are available and updated regularly	**Emergency contingency plans are inconsistently available**	**Emergency contingency plans are available but inconsistently applied**	**Emergency contingency plans are available, consistently applied, and regularly reviewed/updated**	

	1 Point Early stages/some elements	2 Points In Progress	3 Points Strong	Row Score
Post-Procedure Care				
Care Coordination • Patients who have post-procedure monitoring requirements have a clear process for admission, and unexpected admissions have available contingency plans to support transitions to inpatient care for monitoring	**Identified process for anticipated post-procedure admissions but no consistent process for unexpected admissions**	**Identified process for anticipated post-procedure admissions and variable application of contingency plans for unexpected admissions**	**Identified process for anticipated post-procedure admissions and well-developed and followed contingency plans in place for unexpected admissions**	
Continuous Quality Improvement				
Patient/Family Engagement • Patients and families are regularly engaged in providing feedback regarding NORA experiences that are integrated into the review processes by leadership	**A process for patients and families to provide feedback regarding their experiences in NORA environments is inconsistently used, and NORA leadership rarely receives feedback from the organization**	**Patients and families provide feedback regarding patient care experiences in NORA environments, but NORA leadership receives feedback inconsistently**	**Patients and families regularly provide feedback regarding patient care experiences in NORA environments, and a process for NORA leadership to review feedback is in place**	
Case Review Process • Collaborative case reviews are performed to allow for system-level learning	**Case reviews rarely occur or are siloed in the NORA care area**	**Case reviews occur, but the process varies for identifying which cases to review**	**Standardized expectations for cases that should undergo review are disseminated and cases from across NORA care locations are reviewed to ensure shared learnings are disseminated**	
Health Equity • Measures are identified and regularly reviewed as part of the quality portfolio for NORA setting	**Health equity measures are limited**	**Health equity measures have been identified, and data is reviewed regularly**	**Health equity measures have been identified, data is reviewed regularly, and a process for collaborative review exists within the organization**	
Special Considerations				
Specific patient populations • E.g., age (pediatric), diagnosis (insulin dependent, cardiac, substance use disorder), setting (inpatient/outpatient), other demographics factors	**Few specialty patient populations have been identified**	**Specialty patient populations are consistently identified, but no process exists for patient outcome assessments across NORA care environments**	**Specialty patient populations are consistently identified, and a process exists for patient outcome assessments across NORA care environments**	

Use Case Examples

CASE EXAMPLE 1

Interdisciplinary Collaboration at an Academic Medical Center

A large Academic Medical Center piloted the self-assessment tool with leaders in the Interventional Radiology (IR) space. A group of IR physician and nurse leaders were pulled together for two 30-minute meetings, led by the Quality and Safety team at the organization. Each department was asked to score their respective units prior to the first meeting. The Quality and Safety team facilitated a discussion around each category. The group identified five areas to work on based on scoring and discussions. The pilot testers reported that the tool is a great starting point for discussion and is helpful for organization and prioritization. The tool also allowed for a shared learning opportunity among different units within the same organization.

The pilot testers emphasized the importance of having champions in leadership roles to both facilitate completion of the tool and advocate for the resources needed for any work identified from the scores.

CASE EXAMPLE 2

Periodic Quality Check-in at Specialty Hospital

A second pilot tester was a large specialty hospital with well-established NORA programs. This organization had one quality leader complete the tool to verify the perspective that they have a strong program in place. The organization plans to incorporate self-assessment into the existing structure of quality measures to track and prioritize quality program work.

Summary

The AMC PSO gathers groups of frontline experts on varying topics of concern. NORA is a growing area of care, and frontline staff expressed safety concerns and identified opportunities to enhance existing literature. This document aims to identify some of those areas of vulnerability, particularly in the APSF consensus document, and offers a self-assessment table to help organizations evaluate existing NORA settings and identify strengths and opportunities for providing safe care. This self-assessment tool is intended to supplement existing literature and is not meant to be all-inclusive, nor does it capture every nuance of NORA settings.

Our expert group consisted of frontline staff from established NORA settings, including inpatient and outpatient settings at community and academic medical centers. We strived to highlight concerns that cut across most NORA settings with the goal of incorporating this document into organizational priorities by identifying potential areas of growth or strength to share with colleagues. Leadership support and engagement, both at the department and executive level, is a key component of using this tool to enhance safety in NORA settings.

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3. American Society of Anesthesiologists Committee on Practice Parameters. Statement on Nonoperating Room Anesthesia Services. *American Society of Anesthesiologists*. Last amended October 18, 2023. https://www.asahq.org/standards-and-practice-parameters/statement-on-nonoperating-room-anesthesia-services
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ADDITIONAL RESOURCES

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- Herman AD, Jaruzel CB, Lawton S, Tobin CD, Reves JG, Catchpole KR, Alfred MC. Morbidity, mortality, and systems safety in non-operating room anaesthesia: a narrative review. *British Journal of Anaesthesia.* 2021;127(5):729–744. doi:10.1016/j.bja.2021.07.007

TASK FORCE MEMBERS

Aalok Agarwala, MD, MBA
Massachusetts General Hospital

Jorge Baptista, MPH
Massachusetts General Hospital/Mass Eye and Ear Institute

Elizabeth Carvelli, RN
Beth Israel Deaconess Medical Center

Lynne M. Chiodo, JD, RN
Massachusetts General Hospital/Mass Eye and Ear Institute

George Dwyer, MSN, RN, BSc, CCRN, CEN
Boston Medical Center

Michael Kaufman, MD, FASA
Lahey Hospital and Medical Center

Christy LaPointe, BSN, RN, CGRN
Lahey Hospital and Medical Center

Mary Landrigan-Ossar, MD, PhD, FAAP, FASA
Boston Children's Hospital

Maureen McLaughlin, MS, RN, ACNS-BC, CPAN, FASPAN
Lahey Hospital and Medical Center

Satya Krishna Ramachandran, MD
Beth Israel Deaconess Medical Center

Rafael Vazquez, MD
Massachusetts General Hospital

CRICO MEDICAL WRITERS

Matthew Germak, MD, MPH
Vice President of Patient Safety

Kate Humphrey, MD, MPH
Associate Medical Director, AMC PSO

Jennifer Clair MacCready, DNP, RN, AHCNS-BC
Senior Program Director, AMC PSO

Katherine R. Zigmont, BSN, RN
Clinical Program Specialist

CRICO SUPPORT STAFF

Rohan Patel, MHA
Program Administrator, Grants & AMC PSO

Hannah Tremont, MPH
Content Writer & Editor

Garrett Day
Graphic Designer

Wallinda Hutson, MSLIS
Sr. Information Resources Librarian

For permissions and secure methods of communication to the AMC PSO, please contact the AMC PSO team at amcpso@rmf.harvard.edu or 617.450.5586