

Recognizing Safety Concerns With Nonoperating Room Anesthesia

Question

What safety concerns should healthcare providers recognize as procedures involving nonoperating room anesthesia (NORA) increase? What are the risks outside the traditional operating room (OR)?

Answer

NORA refers to anesthesia administered in locations other than a traditional OR, and an increased number of NORA cases does present safety concerns that involve both anesthesia and nonanesthesia providers.¹ Some specific complications found in a closed claims analyses from one study included airway compromise, aspiration pneumonia, and dental injuries. Oversedation and subsequent oxygenation/ventilation accounted for the majority of the claims.² Airway management during procedures that require a shared airway is an additional concern.

Another study showed an upward trend in the age of patients receiving NORA care.³ That study found that NORA cases took half the time of OR cases and were more likely to be started after normal working hours. Anesthesia for colonoscopy was the most common procedure-specific type of NORA.⁴

NORA has expanded into many fields of medicine, with cases being performed in gastroenterology suites, cardiac catheterization labs, interventional radiology labs, interventional pulmonary suites, pain procedure suites, intensive care units, emergency departments, and dental offices, among others. Numerous factors have driven the growth of NORA cases, including the development of less invasive procedures, the increasing comorbidities of the aging population, new technologies that have widened the scope for NORA cases, and the pursuit to improve value while decreasing costs.⁵

Unlike traditional ORs, rooms for NORA procedures often are customized to the procedures, personnel, and location specialized to perform the particular medical intervention. Because these rooms may be customized for specific procedures, it may be challenging for the NORA team members because they may be unfamiliar with it.

The anesthesia provider must work with the procedural team to ensure a safe NORA environment by conducting a thorough preprocedure evaluation to assess for patient safety and procedural feasibility as well as maintaining open and real-time communication among the team members throughout the procedure and into the recovery area.

As NORA cases increase and the patient population receiving these procedures becomes older and has more complex medical conditions, patient safety and the quality of anesthesia provided should be a focus. Part of decreasing risk involves the anesthesia team being adequately prepared for NORA cases and becoming familiar with the location, equipment, and available staff. Safety measures include regular maintenance of anesthesia-related equipment, adequate rescue medications, and up-to-date protocols. Additionally, intraoperative neurophysiological monitoring in the NORA setting should be held to the same standards and qualities as in the OR.⁶

Another risk element of NORA involves the expanding role of imaging in surgical practice, specifically exposure to ionizing radiation in an increasing number of NORA cases. Healthcare organizations should ensure that NORA teams are informed and educated about this kind of exposure. They should be encouraged to use personal shielding (i.e., lead aprons and thyroid shields) and eye protection, and they should maintain distance from the radiation sources.⁷

To encourage safe, high-quality care in NORA locations, healthcare organizations should implement the American Society of Anesthesiologists (ASA) published standards titled [Statement on Nonoperating Room Anesthetizing Locations](#). Additional measures that healthcare organizations can employ to create uniform and safe NORA environments for providers and patients include the following:

- Use checklists in NORA cases to ensure the availability of personnel and equipment.
- Provide ongoing NORA-specific education and training to appropriate healthcare providers and staff members.

- Be aware of technological advances and how providers can use them to improve preoperative assessment, monitor patients during and after procedures, and provide the most appropriate anesthetics for increasingly complex cases.
- Define safe practices for NORA cases and share them among the surgical team.
- Establish protocols and guidelines for emergency procedures. Conduct drills to ensure providers are prepared to respond to an emergency.
- Track risk-related data associated with NORA cases and use it to help support education efforts and develop safety interventions.
- In case of any adverse outcomes, maintain a proactive (rather than reactive) system to examine potential errors and near misses and prevent future occurrences. Craft appropriate responses for adverse events.
- Create quality improvement programs that are supported by debriefings, root cause analysis, and continuing education programs.⁸

Endnotes

¹ Yeh, T., Beutler, S. S., & Urman, R. D. (2020, August). What we can learn from nonoperating room anesthesia registries: Analysis of clinical outcomes and closed claims data. *Current Opinions in Anaesthesiology*, 33(4):527-532.

² Ibid.

³ Alexander, N., Gabriel, R. A., Dutton, R. P., & Urman, R. D. (2017, April). Growth of nonoperating room anesthesia care in the United States: A contemporary trends analysis. *Anesthesia & Analgesia*, 124(4):1261-1267.

⁴ Ibid.

⁵ Walls, J. D., & Weiss, M. S. (2019, June). Safety in non-operating room anesthesia (NORA). *APSF Newsletter*, 34(1). Retrieved from www.apsf.org/article/safety-in-non-operating-room-anesthesia-nora/

⁶ Ibid; Wong, T., Georgiadis, P. L., Urman, R. D., & Tsai, M. H. (2020, January 8). Non-operating room anesthesia: Patient selection and special considerations. *Local and Regional Anesthesia*, 13:1-9.

⁷ Wong, et al., Non-operating room anesthesia: Patient selection and special considerations.

⁸ Walls, et al., Safety in non-operating room anesthesia (NORA).

This document does not constitute legal or medical advice and should not be construed as rules or establishing a standard of care. Because the facts applicable to your situation may vary, or the laws applicable in your jurisdiction may differ, please contact your attorney or other professional advisors if you have any questions related to your legal or medical obligations or rights, state or federal laws, contract interpretation, or other legal questions.

MedPro Group is the marketing name used to refer to the insurance operations of The Medical Protective Company, Princeton Insurance Company, PLICO, Inc. and MedPro RRG Risk Retention Group. All insurance products are underwritten and administered by these and other Berkshire Hathaway affiliates, including National Fire & Marine Insurance Company. Product availability is based upon business and/or regulatory approval and may differ among companies.

© 2023 MedPro Group Inc. All rights reserved.