

Enabling Growth in Nonoperating Room Anesthesia Procedures Amid Workforce Shortages

*Optimizing procedural selection and operations
to enhance patient safety and quality outcomes*

Introduction

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Optimizing procedural selection and operations to enhance patient safety and quality outcomes

Driving the rapid rise in anesthesia cases performed outside the traditional operating room suite are advances in surgical technology; innovations in complex invasive procedures in endoscopy suites, cardiac catheterization labs and interventional radiology; payer incentives to shift cases to ambulatory surgery centers (ASCs); and an aging population with increasing comorbidity burden.

Nonoperating room anesthesia (NORA) cases are expected to account for more than 50% of all anesthesia cases in the next decade. Anesthesiologists are taking a lead role in working with surgeons, proceduralists and hospital executives to create a care redesign process for the increase in NORA services across sites and maintain high-quality outcomes based on the hospital's strategic priorities and resources. This Knowledge Exchange explores strategies to address considerations in patient selection and the perioperative process to improve efficiency and safety. ●

50%

Nonoperating room anesthesia cases are expected to account for more than 50% of all anesthesia cases in the next decade.

10 steps health leaders are taking to meet patients' surgical and procedural demands with high-quality outcomes

1 Screen and select patients for appropriate sedation and setting. Conduct an anesthesia preoperative assessment and address modifiable risk factors.

2 Use anesthesia preoperative evaluations to reduce same-day NORA cancellations.

3 Streamline communication among surgeons, proceduralists and anesthesia services with electronic health records (EHRs) and health information exchanges to assess patient complexity and prepare for service in a timely manner.

10 Position NORA locations as close as possible to OR locations in new facilities or renovations.

4 Provide anesthesia guidelines to practitioners, surgeons and other providers who may be responsible for hypertension management programs.

9 Employ dashboards and perioperative tracking for procedures with metrics for on-time starts, case lengths, any case delays, and utilization of anesthesia minutes. Share the metrics with team members and look for solutions to improve these metrics.

5 Develop specialized training for procedural physicians and RNs for moderate sedation in endoscopy, interventional radiology and pain procedures.

8 Centralize scheduling for both OR and NORA cases for anesthesia staffing and support personnel who may be deployed to these areas. Optimize procedural block time with anesthesia block time.

6 Evaluate the appropriate anesthesia staffing model based on patient risk, procedure complexity, and available staff resources and training.

7 Create NORA rules and culture similar to that of the regular operating rooms (ORs), e.g., measuring first-case, on-time starts.



Participants



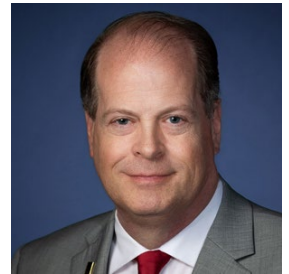
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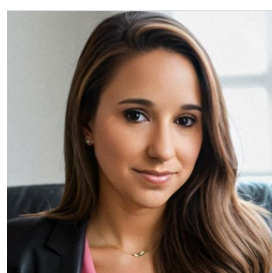
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MODERATOR SUZANNA HOPPSZALLERN (*American Hospital Association*): **What factors are driving the increasing demand for nonoperating room anesthesia (NORA) cases in your health system and what challenges do you face in meeting the demand?**

JAY JADLOWSKI (*Methodist Hospital*): At our ambulatory surgery center (ASC), we do a lot of pain injections. Historically, we were doing them in an OR and now, we're trying to move them to a procedural room. We also perform minor orthopedic procedures with local anesthesia.

BRENDA DAVIS (*CapRock Health*): We're a small hospital. Our town has two other hospitals. We provide mostly emergency care in the emergency department (ED) in the hospital and our 24-hour emergency care facility. We're looking to add procedures. Currently, we've been approached to do electrophysiology studies, and that's why I'm interested in looking at anesthesia needs outside of a traditional OR space. Also, we're looking at a joint venture ASC.

OLIVIA AJJA (*University of Minnesota Medical Center*): We're seeing increased demands for anesthesia cases in interventional radiology, endoscopy and imaging services, predominantly MRI. Quite a few of our endoscopy procedures are done under nurse-administered moderate sedation. However, with the addition of new gastroenterologists, there is an increased interest in transitioning to deep sedation with propofol administered by our anesthesia team.

ESTEBAN MILLER (*Black River Memorial Hospital*): As a critical access, small independent community hospital in rural Wisconsin, we've seen a lot of moves to the endoscopy suite and procedural rooms. We're using our certified registered nurse anesthetists (CRNAs) for

deeper sedation, which had occurred in the ORs in the past. There's demand and growth in the procedural pain clinic, increasing the workforce needs. We have created a position for a CRNA who is specially trained in pain procedures, injections and growing pain clinic services through the procedural rooms and outside the OR.

BRITTLYN VERGENAL (*Bayou Bend Health System*): Our critical access hospital has two ORs where we do procedures. We also use our CRNAs in endoscopy and pain management cases.

KATHRYN BERTANY (*Bozeman Health*): We have both a critical access hospital with eight beds, that does not offer procedures, and a 140-bed regional medical center with eight ORs and NORA cases for interventional endoscopy and MRI. Historically, we have had an anesthesiologist staffing model and used CRNAs. With the physician-only model, there is a demand for increased subsidies from the health system which is not sustainable. We are watching how the market is shifting both nationally and locally to understand what opportunity we may have to partner with our anesthesiologists in a successful model for the future.

RONALD HARTER (*American Society of Anesthesiologists (ASA) and The Ohio State University Wexner Medical Center*): Clearly, providers are facing challenges not only around NORA, but also just surgical services. Examples like the University of Minnesota considering transitioning away from RN-administered moderate sedation supervised by the procedural physician is being driven by new physician graduates who have an expectation that the anesthesia department will provide that service. That really captures a huge part of the growth in anesthesia demand in and out of OR services. ASA is looking at how we can help to provide education and certification training, not only for RNs who would be

ESTEBAN MILLER | BLACK RIVER MEMORIAL HOSPITAL

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administering sedation, but also for the non-anesthesiologist physicians who supervise them.

Physicians who have come out of training within the last few years have not had much experience at all with procedural sedation. Understandably, they're not comfortable with being responsible for that part of the care. ASA has some resources on moderate sedation, which we are building out and tailoring specifically to these clinicians.

For patients who are relatively healthy, some endoscopy and other less invasive services may require some level of sedation but may not need anesthesiologist involvement. Look for opportunities where the staff who are currently doing moderate sedation train others.

MARY DALE PETERSON (*Driscoll Children's Health System*): Children's hospitals may be a little bit ahead of this because of the high demand for any kind of sedation in children. The anesthesia department can't be there for every broken bone, every intrathecal chemotherapy or bone marrow biopsy. Our clinics provide these services across all of south Texas. As we have seen, new nephrologists or oncologists who come on board are not receiving the training that physicians used to receive. We have set up our own program to teach them, and it has become an expectation in our departments.

Now, there's still a percentage of children who will need anesthesia services for various reasons, and that's where screening and selection are important. We have criteria for which children will not be good candidates for moderate sedation. Our nurses and proceduralists go through extensive training in our simulation lab,

and they come into our OR to make sure that they can manage an airway. It's highly effective. According to the Pediatric Sedation Research Consortium, it's safe if it's done with protocols, and you have the right training and the right people doing it.

The demand for anesthesia has increased for MRIs in pediatrics, too, because of the length of those procedures and time that children have to remain still, especially the younger age groups. Traditionally, that's been done with anesthesiologists. With workforce challenges, we are using other models where we train our pediatric intensivists, and some hospitals even use their ED physicians who have extra training and are familiar with the drugs being used. They're under the aegis of the anesthesia department when they provide those services.

MODERATOR: *Amid resource constraints, how does your organization optimize pre-op evaluations, scheduling of cases requiring anesthesia care, and staffing to ensure effective anesthesia delivery? What opportunities do you see for improvement and what barriers exist?*

VERGENAL: We have two pre-admission nurses who handle the scheduling and see patients prior to procedures. For major surgeries, we see our patients in person for their interview and pre-op labs. For pain injections, typically we'll do phone interviews once we've seen the patient in person and have an accurate history. Our biggest challenge is not getting accurate patient histories from the doctor's office. When we see them in person, we may find that they need cardiac clearance, and we have to start that whole process, which causes delays in procedures.

MARY DALE PETERSON | DRISCOLL CHILDREN'S HEALTH SYSTEM

“The ASA is working on appropriate preoperative evaluations and risk stratification for NORA procedures. We're looking at a grid model to evaluate the resources needed for procedures and patients by risk category — for example, a low-risk procedure and high-risk patient, or a higher-risk procedure in a healthy patient, or a low-risk procedure in a low-risk patient. Figuring out where the patient falls in that grid can help determine if an anesthesiologist is required or if a trained sedation nurse could do this with moderate sedation.”

JADLOWSKI: We have a pre-surgery department; the RNs call the patients ahead of time. We work closely with our anesthesia group, and we have anesthesia guidelines that are sent to the practitioners, both the surgeons and other providers who may be doing the hypertension management programs (HMP) ahead of time. But it is still a struggle to obtain the orders or give patients the proper instructions. I always use blood thinners as an example. Depending on the procedure and the patient, when do you want to discontinue the medication prior to the procedure?

NICOLE SCHWEITZER (*Black River Memorial Hospital*): We don't employ specialty surgeons; they provide services at multiple places with different processes. Over the last year, we've made great strides in transitioning from paper to electronic medical documentation and improved interoperability between the off-site surgeons and our CRNAs to review the complexity of the patient and prepare for the service. We continue to work to ensure that history and physicals are timely and completed well in advance so that we can assess risk for our patients.

FREDDY OLIVAREZ (*Medical Arts Hospital*): As of this moment, our OR is closed. We have a specialty annex clinic with multiple specialty surgeons who provide an outreach clinic and they have expressed an interest in providing endoscopy and gastrointestinal procedures at Medical Arts Hospital when we reopen our surgical services.

AJJA: Our pre-anesthesia testing department comprises two separate areas; in one area the nurses do the customary phone screenings, and there's a separate clinic staffed by advanced practice nurses (APNs) who do the pre-op history and physical. We have opportunities to optimize some of the work that we do in our HMP clinic. Ideally, we would like to address mod-

ifiable risk factors like smoking cessation, and we've seen a reduction in same-day surgery cancellations. At our ASC, one of the anesthesia providers will review the medical records to ensure that patients meet the election criteria.

PETERSON: Since we've seen this explosion in NORA, we've created rules and culture similar to those of our regular ORs. That means people showing up on time. It means managing block time, so you don't have a proceduralist having a couple of cases requiring anesthesia, then jumping to a local, and then all of your staff, including your anesthesia staff, are standing by idly. Centralized scheduling, where both OR and NORA cases are all in one schedule, can be helpful for anesthesia department staff and support personnel.

If you're building new facilities or renovating, it's always helpful to have your NORA locations in close proximity to your OR locations to create an efficiency of scale, especially when you're doing medical direction with anesthesiologist assistants (AAs) or CRNAs.

The ASA is working on appropriate preoperative evaluations and risk stratification for NORA procedures. We're looking at a grid model to evaluate the resources needed for procedures and patients by risk category — for example, a low-risk procedure and high-risk patient, or a higher-risk procedure in a healthy patient, or a low-risk procedure in a low-risk patient. Figuring out where the patient falls in that grid can help determine if an anesthesiologist is required or if a trained sedation nurse could do this with moderate sedation.

HARTER: Several points that were raised were challenges about being able to assess the patient preoperatively. Specifically, canceling on the day of the procedure is a dissatisfier for everybody when you have highly trained staff and an expensive OR or procedural

JAY JADLOWSKI | METHODIST HOSPITAL

“We're working closely with our colleagues in interventional radiology and the cath lab. Now that we're seeing more anesthesia use in those areas, we want to make sure that we're tracking their on-time starts, case lengths and any case delays.”

room that sits idle. It's definitely a missed opportunity. When you're doing an anesthesia pre-op assessment, one of the challenges is answering the question, 'Is this person going to be able to come in and not be canceled?'

The anesthesia pre-op evaluation is bundled with the payment for the anesthesia charges, so the operational model has to be built on what the savings of reduced same-day cancellations are. Initiating those resources can be a challenge. Pre-op optimization can help; for example, if patients are anemic, you can have them come in for iron infusions, which is a service that most insurers will pay for.

Increasingly, we're seeing more challenges for the non-OR cases. Typically, they're being referred to a proceduralist who may not have a relationship with the patient, so they're not able to determine if the person needs a full-scale workup, or is someone who simply can have an RN screening?

In those settings, it's important to have someone who can do a good, focused assessment and determine if the patient needs a more formal pre-op assessment and possibly further testing or interventions. There's so much complexity now — for patients with stents, coordinating their anticoagulants and making sure that they align with the needs of the surgery or the procedure. Routing the patient through a pre-op clinic is as important, if not more so, in the NORA cases as it is for OR cases.

MODERATOR: Does your organization track and report any NORA performance optimization metrics? Is your organization using the EHR or other systems to optimize and improve procedural throughput?

MILLER: The metrics we track are mostly volume and safety data. Our systems are integrated, allowing us to pull out data, and our in-house data wizards mine it and help us with report writing.

VERGENAL: As far as procedures go, we track case-load and no-shows. We're working with the medical offices to see how we can prevent that from happening.

JADLOWSKI: We have a robust tracking system. We've used Cerner's perioperative tracking for surgical services for a long time, and now we're using it in our cardiac catheterization labs. We're working closely with our colleagues in interventional radiology and the cath lab. Now that we're seeing more anesthesia use in those areas, we want to make sure that we're tracking their on-time starts, case lengths and any case delays.

AJJA: Jay, I would love to see your dashboard. We're starting to work on that here. We know that in some of our off-site locations, our anesthesia teams have been underutilized due to delays in procedures. We're trying to set up a block schedule for scheduling anesthesia outside the OR and develop metrics on the utilization of anesthesia minutes for those cases.

HARTER: At Ohio State, we found that having utilization data and sharing it with the off-site locations is helpful, whether it's the percentage of the block for a given off-site service or anesthesia minutes that are utilized throughout the day. The procedural block may be filled, but the anesthesia utilization could be 50%, for example.

All those metrics are important, in particular, first-case starts, and it is equally important to share them with all the team members and look for solutions to improve the metrics.

RONALD HARTER | ASA | THE OHIO STATE UNIVERSITY WERNER MEDICAL CENTER

“The key is having the patient appropriately risk-stratified so if a patient has few comorbidities, those procedures can be done in an ASC or other setting. If nurses and proceduralists are trained to do procedural sedation, that model will offload a significant demand for anesthesia services.”

PETERSON: We have the same expectations for our proceduralists as we do our surgeons. When anyone requests any kind of an anesthesia block, it goes into our main schedule and they're held accountable for the same metrics.

HARTER: Once you have central scheduling, especially for off-site locations, it may not be perfect initially. If you're too rigid in a central scheduling system, it can be a source of frustration for the proceduralists who are trying to access anesthesia.

There are different levels of urgency in off-site locations, just as there are in the ORs. So, it doesn't preclude the conversation with the interventional radiologist who says, 'We need to determine whether this person is a surgical candidate or not, and we really need to get this done.' Whoever runs the anesthesia schedule will be able to get it in sooner.

MODERATOR: **What creative enterprise solutions has your organization employed to improve access to care for patients who need procedures that may not require an anesthesia professional?**

JADLOWSKI: We have several orthopedic patients who are sedated locally, but their block is with anesthesia. We also have some injections that are non-anesthesia cases that were in an OR, taking up that vital resource. We were able to convert an old CT room into a procedural room to offset those cases. The patients also were using the surgery recovery area. Now, patients undergoing procedures have their own area, so they don't intermix with the anesthesia cases, which need more preparation and recovery.

MILLER: We're moving away from the nurse anesthesia model because we have sufficient anesthesiologist coverage. The CRNA model could be sustainable as long as payers continue reimbursement.

VERGENAL: Local procedures are the only cases for which we do not use our CRNAs. In orthopedic cases, our surgeons will block the patients with local anesthesia, so that helps free up our CRNAs.

AJJA: In terms of our recovery room resources, when you administer moderate sedation, the benzodiazepines and narcotics last much longer than propofol, and patients vary in their recovery. We're contemplating transitioning from moderate sedation to anesthesia.

We're transitioning some of our outpatient pediatric surgeries to the ASC. With that, we're going to be adding an additional pediatric anesthesiologist. So, we could have a scenario where we would require two anesthesiologists for the medical direction of five CRNAs, and that's not exactly a cost-effective model in an ASC.

PETERSON: The workforce outlook for CRNAs, AAs and CRNAs in anesthesia is improving. However, the workforce numbers will still be insufficient for the higher demand in NORA cases, continuing the pressure on anesthesia resources. Having people trained in moderate sedation will be helpful as NORA procedures increase.

There are regional differences in workforce shortages, and how you make the most of your resources will determine whether you move to different anesthesia models.

HARTER: The key is having the patient appropriately risk-stratified so if a patient has few comorbidities, those procedures can be done in an ASC or other setting. If nurses and proceduralists are trained to do procedural sedation, that model will offload a significant demand for anesthesia services.

It's not one size fits all, but you can fit patients into two significant buckets: one that doesn't require anesthesia services, an anesthesiologist or CRNA versus a higher-acuity or comorbid patient who requires a significant level of anesthesia. ●

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