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PRESIDENT'S MESSAGE

“I just want things to go back to normal.”

How many times have you heard that said (and said it yourself) in the last few months? We are moving into a phase of the pandemic that may be almost as challenging as the early days that saw our healthcare systems totally overwhelmed by COVID. In this new state of constancy, we face the issues of complacency and continued uncertainty. Now more than ever, all healthcare providers must continue to be sources for correct information and advocates for personal behaviors that can help us through the challenging months (hopefully not years) to come.

We also have to maintain pressure on the other societal problems facing our world. It's easy to get caught up in the energy of a movement when it first springs to life and lights the social media world afire. But then too often, the news cycle rolls on and we get distracted by other things, and the moment passes. With it goes the opportunity to take steps forward toward lasting, positive change.

In the field of perioperative medicine, we are blessed with many prominent voices for patient rights, gender equality, and social justice. As clinicians at the intersection of so many aspects in healthcare, perioperative medicine practitioners are natural leaders for change management, and the opportunity for us to influence the process of making the world a better place is stronger than ever.

So, as we carry on through this pandemic, let's all work to sustain each other personally and professionally and encourage each other not to lose sight of the bigger picture. We always have much work to do in our clinical roles, but we shouldn't lose track of the larger goals and how we can be critical to getting things back to a new, better normal.

Thanks to all of you for being the inspiration that keeps me striving to do good!



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VICE-PRESIDENT'S MESSAGE

“Do what you can, with what you have, where you are.”—Theodore Roosevelt

In *The Compound Effect* (Vanguard Press, ©2010), Darren Hardy makes the argument for having small, consistent habits that ultimately result in big changes. This concept resonated deeply with me, because this approach feels easier to adopt and maintain than the alternative. This mindset helps to prevent us from becoming so overwhelmed by the enormity of the task that we give up before we even get started. Given our current COVID reality, we may be seriously questioning how we will begin anything new when we are asked to do more with less, and are feeling overburdened with all of the additional barriers and challenges we face on a daily basis. But Darren Hardy reminds us that we need to focus on the half of the glass that is full: the opportunity to make an impact and change for the better if we just get started. I caution you all to recognize when you are acting from a scarcity mindset - not enough time, not enough resources, no support. In those moments that you find yourself in that place, all it might take is a change of mindset to one of growth and opportunity. “This is a challenge, an opportunity for my team and I to learn and grow.”

Another concept that I liked from Darren Hardy’s book was that he reminded me that you cannot improve something until you measure it. Being mindful about and observing our environment is so key. He also emphasizes the benefits of gratitude. Am I always ready to start the day in a growth mindset? Of course not. As those of you who work with me know, sometimes my motivation to arrive in clinic on time is simply to make sure that I don’t miss out on the amazing Cuban coffee that my friend and colleague, Jacky Muñoz, NP has prepared for our team. That’s right. Some days even I am only there for the coffee. But once I’m there and the team comes together, our collective energy moves us forward -that and the cortados. I am able to notice how much more positive and energized I am when our team gathers, and I am grateful for their expertise, commitment and individual strengths. Be mindful about what you appreciate about your colleagues. Be sure to share this with them. Because as he says, “what you appreciate, appreciates”.

Revamping a preop clinic, or building a prehabilitation program can feel overwhelming—because we all recognize how important and significant it is for our patients. The stakes to succeed are high. We must be mindful not to get caught in a trap of comparing ourselves to our colleagues’ clinics at other institutions and feeling as if we could never get to the place where they are and then not starting. When I feel this way, I remind myself that we all start from nothing and make progress through small, consistent changes in the right direction. Sometimes I find it helpful to frame these initiatives as a pilot—“I am going to try this and learn from it”. Will there be obstacles and setbacks? Of course there will be. Be specific about your goals and the steps required to achieve them, and then get started. Today. With what you have. And those small, but consistent habits will compound into a major impact. You can reap huge rewards from small, seemingly insignificant, but consistent actions.

Start where you are. Use what you have. Do what you can.



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EDITOR'S LETTER

Our lives are changing in a dramatic and profound way, beyond the “normal” trajectory, whether we want it or not. Transformation is always a challenge, and when it happens under the duress of a global health crisis, the challenge is ever greater and more demanding, and it tests our morals, our expertise and leadership. It is also an opportunity: for existential analysis, for enactment of moral and intellectual progress, for display of the best human qualities.

History has witnessed multiple catastrophic events and epidemics. The book “The Plague”, written by Albert Camus and reviewed in the section “Last book I read”, reflects the fictional look into one such event and the human reactions and adaptations, similar to those brought forth by the contemporary real-life pandemic that we are facing.

Despite the epi- and pandemics of times past and the recurrent warnings by experts, many of us, like the people of Oran, have lived with a false sense of security and untouchability, believing that in the modern day and age such a crisis could not happen to us or would not have such a wide-spread and deadly impact. History has proven us wrong, it has emphasized the deficiencies in physical, mental and material preparedness to handle crises. It has underscored the need for comprehensive systems to manage and prevent the critical impact of future catastrophes under a strong educated leadership with focus on the common good. Furthermore, it places a burden on all of us to shoulder the weight, to share the responsibilities, to give and ask for accountability and to work as a community. We have witnessed the tireless efforts of the medical community, first responders, and many other members of the society, who have rallied to support each other and the society. We must learn from history and strive not only to get through this time, but to come out of it better than ever – better humans, better society, better leaders.



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Communication and Collaboration During COVID-19

I vaguely recall the thoughts I had back in early March, after the first case of COVID-19 was diagnosed in Oregon but before the first case was announced at my institution—"How less busy will we be in perioperative medicine? Will COVID-19 affect perioperative medicine nearly as much as it's affecting inpatient medicine and critical care"?

I had these thoughts just as the talk of shutting down the state was accelerating and just as the conversation about cancelling surgeries to preserve PPE and inpatient beds was also brewing. Yes, we anticipated that the hospitalists in clinic would be deployed to inpatient COVID-19 care. Yes, we anticipated that our anesthesiologist colleagues would be deployed to critical care and code teams—and perhaps even operating rooms would be turned into ICUs. But what would happen to those focusing on the "PRE" in perioperative medicine?

Now, almost six months to the day that the first case was announced in Oregon (February 28th), I look back at the arc of the last half a year and have to wonder—did my experience as a perioperative clinician make me better prepared to participate in the response to COVID-19?

For me, the essence of being a consummate perioperative clinician has been being able to blend evidence-based, guideline-driven with patient-centered, humanistic care—the epitome of the art plus science of medicine. Additionally, it has been about bringing my best to a large variety of challenging clinician scenarios every day—relying on clear, professional communication while simultaneously advocating for my patients' safety and the workflows of my surgical and anesthesiologist colleagues. It is about closed-loop communication that explains not only the "what" but the "why" in a way that respects the roles and stresses of the surgical space—why does this surgery need to be canceled the day before surgery to facilitate an ECHO? It's about being dynamic, responsive, and creative while engaging multiple stakeholders and rallying a team—how can we arrange a pre-op stress test on short notice in rural Oregon to avoid a surgical delay?

When we were thrown into the response to COVID-19, we were collectively and personally shaken up. In under a week, we transitioned to virtual visits, and we have continued to institute and optimize COVID-19 related modifications for our team and physical clinic space. Our team members have continued to balance clinical and family roles. We have risen to the challenges and innovative asks of hospital and perioperative leadership—especially instituting a preop COVID-19 screening protocol as well as a protocol for the preoperative assessment of patients who have recovered from COVID-19. Perioperative medicine sits at a pivotal intersection of so many service lines within a hospital or health system—and our muscle memory in working with these partners carried us far under challenging circumstances.

For all the stress of the last six months, many of my multidisciplinary interactions have been some of the most professionally satisfying of my career. My favorite elements of perioperative medicine have been magnified and enhanced—working with colleagues inside and outside hospital medicine, stepping up to the ask of hospital leadership, rapidly storming and norming new interdisciplinary teams, and advocating for patients.

As we enter the uncertainty of the fall and winter, I hope that you, our SPAQI colleagues, continue to feel the support of the perioperative medicine community as we continue to practice medicine during a global pandemic—whether you are in the pre-op clinic, in the OR, or on the wards. Draw on your strengths as active listeners, as dynamic and caring clinicians, as agile and responsive clinicians, communicators, and as consummate multidisciplinary team members. We hope to continue to use the SPAQI network, including the online message forums, as a place to learn, grow, connect, and support each other through these challenges.



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American Society of Hematology 2019 Guidelines for Management of Venous Thromboembolism: Prevention of Venous Thromboembolism in Surgical Hospitalized Patients.

Anderson DR et al. Blood Adv. 2019;3(23):3898-3944.

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Introduction

Venous thromboembolism (VTE) is a major health problem with about 900,000 new cases per year in United States (1). Patients are at highest risk of fatal postoperative pulmonary embolism (PE) at 3-7 days after surgery. Risk of symptomatic VTE is highest within 2 weeks of surgery and remains elevated for about 2-3 months (2). PE is an independent predictor of reduced survival for up to 3 months postoperatively (3). Long-term complications of VTE include post-thrombotic syndrome, pulmonary hypertension, right heart failure and thrombosis recurrence.

The purpose of this article is to summarize the surgical VTE prophylaxis guidelines issued by the American Society of Hematology (ASH) (4) and to compare them with previous guidelines by the American College of Chest Physicians (ACCP) (5)(6), The American Academy of Orthopedic Surgery (AAOS) (7), and the National Institute for Health and Care Excellence guidelines (NICE) (8).

Major orthopedic surgery

Total hip arthroplasty or Total knee arthroplasty:

For patients undergoing total hip arthroplasty (THA) or total knee arthroplasty (TKA), 2012 ACCP guidelines (5) recommend pharmacological prophylaxis over mechanical prophylaxis alone. Low-dose unfractionated heparin (LDUH), LMWH, fondaparinux, adjusted-dose vitamin K antagonist (VKA), aspirin, apixaban, dabigatran and rivaroxaban are recommended pharmacological agents, and LMWH is recommended as the preferred agent for pharmacologic VTE prophylaxis.

AAOS guidelines from 2012 (7) and NICE guidelines last updated in 2019 (8), recommend pharmacological prophylaxis over mechanical prophylaxis alone as well. The AAOS guidelines (7) recommend using aspirin or LMWH or warfarin for VTE prophylaxis in orthopedic surgery with no preference for using one agent over the other.

The NICE guidelines (8) recommend that patients with elective hip replacement be preferably treated with one of the following regimens: 1) LMWH for 10 days followed by aspirin 75 or 150 mg once daily for a further 28 days; 2) LMWH alone for 28 days with mechanical prophylaxis; or 3) rivaroxaban for 28 days after surgery. For elective knee replacement, the recommendation is to treat with aspirin 75 mg or 150 mg once daily, prophylactic-dose LMWH, or rivaroxaban for 14 days postoperatively.

ASH guidelines (4) recommend pharmacological prophylaxis over mechanical prophylaxis alone. Direct oral anticoagulants (DOACs; e.g., apixaban, dabigatran and rivaroxaban) are preferred over LMWH, LDUH, and warfarin. According to evidence considered in ASH guidelines (4), DOACs probably slightly reduce the risk of symptomatic PEs and symptomatic proximal DVTs as compared to LMWH. However, they do not reduce mortality and probably do not increase major bleeding as compared to LMWH. In addition, ASH reviewers did not find a difference in mortality and risk of symptomatic PEs or DVTs between aspirin or oral anticoagulants. Both aspirin and DOACs are therefore recommended for prophylaxis in patients with THA or TKA.

Hip fracture repair:

For patients undergoing hip fracture repair, ASH guidelines (4) suggest using pharmacological prophylaxis over no pharmacological prophylaxis. LMWH or LDUH are recommended as preferred agents. Intermittent pneumatic compression devices (IPCDs) are recommended over graduated compression stockings (GCS) for patients who receive mechanical prophylaxis. ACCP (5), AAOS (7) and NICE guidelines (8) also recommend pharmacological prophylaxis over mechanical prophylaxis alone for hip fracture repair. ACCP guidelines (5) recommend using LDUH, LMWH, fondaparinux, VKA or aspirin. LMWH is recommended as the preferred agent. In addition, dual prophylaxis with IPCDs and an antithrombotic agent during the hospital stay is suggested.

AAOS (7) has no preference for any pharmacological agent for VTE prophylaxis after hip fracture repair surgery. NICE guidelines (8) recommend LMWH or fondaparinux as preferred agents for VTE prophylaxis after hip fracture repair. European

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GUIDELINE REVIEW

guidelines (Jenny JY) (9) recommend aspirin for VTE prophylaxis after THA, TKA and HFS (Grade 1C), with the understanding that it may be less effective or as effective as LMWH for prevention of VTE while being associated with a lower bleeding risk.

Minor orthopedic surgery

ASH guidelines (4) do not address VTE prophylaxis in minor orthopedic surgeries. ACCP guidelines (5) recommend against pharmacological thromboprophylaxis for patients with isolated lower leg fracture repair or knee arthroscopy. AAOS (7) has not addressed VTE prophylaxis in minor orthopedic surgeries. NICE guidelines (8) recommend that VTE prophylaxis is generally not necessary for people undergoing arthroscopic knee surgery. Exceptions include patients undergoing foot or ankle surgery that requires immobilization, or when total anesthesia time exceeds 90 minutes, or when the person's risk of VTE outweighs their risk of bleeding. NICE guidelines also recommend VTE prophylaxis for people undergoing upper limb surgery if the person's total time under general anesthesia is over 90 minutes or where the surgery is likely to limit ambulation.

Non-orthopedic surgery

Non-orthopedic surgery includes major and minor surgeries that fall under many surgical specialties as general surgery, neurosurgery, vascular surgery, cardiac surgery, gynecological surgery and trauma.

For general surgery, American Society of Hematology (ASH) guidelines (4) recommend pharmacological prophylaxis with LMWH or LDUH. In general, the ASH guidelines recommend against pharmacological prophylaxis in patients undergoing laparoscopic cholecystectomy, transurethral resection of the prostate and radical prostatectomy. ASH guidelines recommend against pharmacological prophylaxis for major neurological procedures with the exception of very high VTE risk patients. LMWH is suggested over LDUH when a pharmacological agent is used in neurosurgery patients. For cardiac/vascular surgery, ASH does not recommend for or against pharmacological prophylaxis, but if used, LMWH or LDUH is the preferred agent. ASH recommends pharmacological prophylaxis after major trauma in patients with at low to moderate risk of bleeding and mechanical prophylaxis if there is high bleeding risk. LMWH or LDUH are recommended as the preferred agents. After major gynecological surgery, ASH recommends pharmacological prophylaxis with LMWH or UFH.

For all non-orthopedic surgeries, ACCP guidelines (6) recommend assessment of thrombosis risk with the recommendation to use a risk assessment tool such as the modified Caprini score (Bahl V)(10). This is then followed by an assessment of the risk for major bleeding. They suggest against pharmacological prophylaxis for major neurological procedures with the exception of very high VTE risk patients. In such patients, the pharmacological agent should be started after adequate hemostasis has been achieved. For cardiac surgery patients, ACCP (6) recommends mechanical prophylaxis if the postoperative course is uncomplicated. Pharmacological prophylaxis is recommended for patients with a complicated post-operative course and prolonged hospital stay. When pharmacological prophylaxis is used, LMWH or UFH is recommended as the preferred agent in all non-orthopedic surgery patients.

NICE guidelines (8) recommend pharmacological prophylaxis after general surgery with LMWH or fondaparinux. Mechanical prophylaxis with IPCDs or antiembolism stockings is suggested for major neurological procedures, with the exception of very high VTE risk patients. LMWH is recommended as the preferred agent in these patients. NICE guidelines recommend using pharmacological prophylaxis for vascular and cardiac surgery patients. LMWH is preferred while fondaparinux is recommended as an alternative agent. NICE guidelines recommend only mechanical prophylaxis with IPCDs after major trauma and pharmacological prophylaxis with LMWH or fondaparinux after major gynecological surgery.

Duration of VTE Prophylaxis

Prophylaxis for less than 2 weeks is considered short-term while extended prophylaxis spans 3-6 weeks. The ASH guideline (4) review did not reveal a difference in mortality between extended versus short-term prophylaxis. However, there is likely a small reduction in symptomatic PEs, symptomatic proximal DVTs and distal DVTs by extended over short-term prophylaxis. Rates of bleeding were similar in both groups. Overall, ASH suggests extended prophylaxis over short-term prophylaxis in patients undergoing major surgeries.

ACCP guidelines (5) suggest extending prophylaxis for up to 35 days for orthopedic surgery. ACCP guidelines (6) also recommend extended prophylaxis for 4 weeks with LMWH in patients undergoing abdominal or pelvic cancer surgery who are not at high risk of bleeding. AAOS (7) recommends that physicians determine duration of prophylaxis on a case by case basis. NICE guidelines (8) recommend VTE prophylaxis for 14 days for elective knee arthroplasty and 28 days for elective hip arthroplasty and abdominal cancer surgery.

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Conclusions

Overall, ASH guidelines, based on evidence from high quality systematic reviews, provide a substantially different recommendation about use of aspirin or DOACs over other agents for most common orthopedic surgeries, including total hip and knee replacements. These guidelines also have the potential to gear our clinical practice towards extended VTE prophylaxis over short term prophylaxis for major surgeries. In the case of non-orthopedic surgery, ASH guidelines also do not explicitly endorse the use of risk assessment tools such as the modified Caprini score. However, such tools may continue to be of use in the clinical practice when weighing risks and benefits of VTE prophylaxis in non-orthopedic surgery.

References:

1. Data and Statistics on Venous Thromboembolism | CDC [Internet]. [cited 2020 Jul 26]. Available from: <https://www.cdc.gov/ncbddd/dvt/data.html>
2. Kearon C. Natural History of Venous Thromboembolism. *Circulation* [Internet]. 2003 Jun 17 [cited 2020 Jul 26];107(90231):221-30. Available from: <http://circ.ahajournals.org/cgi/doi/10.1161/01.CIR.0000078464.82671.78>
3. Editors G, Turpie AGG, Büller HR, Heit JA. Venous Thromboembolism Epidemiology: Implications for Prevention and Management. Vol. 28, Clinical Evidence, and Applications. 2002.
4. Anderson DR, Morgano GP, Bennett C, Dentali F, Francis CW, Garcia DA, et al. American Society of Hematology 2019 guidelines for management of venous thromboembolism: Prevention of venous thromboembolism in surgical hospitalized patients. *Blood Adv* [Internet]. 2019 [cited 2020 Jul 8];3(23):3898–944. Available from: <https://pubmed.ncbi.nlm.nih.gov/31794602/>
5. Falck-Ytter Y, Francis CW, Johanson NA, Curley C, Dahl OE, Schulman S, et al. Prevention of VTE in orthopedic surgery patients. Antithrombotic therapy and prevention of thrombosis, 9th ed: American College of Chest Physicians evidence-based clinical practice guidelines. *Chest* [Internet]. 2012 [cited 2020 Jul 8];141(2 SUPPL.):e278S-e325S. Available from: <https://pubmed.ncbi.nlm.nih.gov/22315265/>
6. Gould MK, Garcia DA, Wren SM, Karanicolas PJ, Arcelus JI, Heit JA, et al. Prevention of VTE in nonorthopedic surgical patients. Antithrombotic therapy and prevention of thrombosis, 9th ed: American College of Chest Physicians evidence-based clinical practice guidelines. *Chest* [Internet]. 2012 [cited 2020 Jul 8];141(2 SUPPL.):e227S-e277S. Available from: <https://pubmed.ncbi.nlm.nih.gov/22315263/>
7. Jacobs JJ, Mont MA, Bozic KJ, Della Valle CJ, Goodman SB, Lewis CG, et al. American Academy of Orthopaedic Surgeons clinical practice guideline on: Preventing venous thromboembolic disease in patients undergoing elective hip and knee arthroplasty [Internet]. Vol. 94, Journal of Bone and Joint Surgery - Series A. Journal of Bone and Joint Surgery Inc.; 2012 [cited 2020 Aug 14]. p. 746–7. Available from: <https://pubmed.ncbi.nlm.nih.gov/22517391/>
8. Overview | Venous thromboembolism in over 16s: reducing the risk of hospital-acquired deep vein thrombosis or pulmonary embolism | Guidance | NICE.
9. Jenny JY, Pabinger I, Samama CM. European guidelines on perioperative venous thromboembolism prophylaxis. *Eur J Anaesthesiol* [Internet]. 2018 Feb 1 [cited 2020 Aug 14];35(2):123–9. Available from: <https://pubmed.ncbi.nlm.nih.gov/29112548/>
10. Bahl V, Hu HM, Henke PK, Wakefield TW, Campbell DA, Caprini JA. A validation study of a retrospective venous thromboembolism risk scoring method. *Ann Surg* [Internet]. 2010 Feb [cited 2020 Aug 14];251(2):344–50. Available from: <https://pubmed.ncbi.nlm.nih.gov/19779324/>

PROGRAM SPOTLIGHT: Adding Value through Standardization of NORA Services at UAB

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Most anesthesiology practices, both community and academic, describe an increase in case volume conducted outside of traditional operating rooms¹. This increased demand is attributed in part to significant advances in noninvasive diagnostic and interventional techniques. Longer and more complex procedures performed on older and sicker patients require the assistance of the anesthesiology service. In 2019, nonoperating room anesthesia (NORA) accounted for 27% of the anesthetized cases at the University of Alabama at Birmingham (UAB). This percentage represents a steady increase over the preceding years. The first six months of 2020 saw UAB's NORA case volume at 29%, a proportion only minimally impacted by the COVID-19 pandemic. The average age of our NORA patients is 52 years, and the median ASA physical status score is 3.

CRITERIA FOR PROVISION OF NORA SERVICES

The provisions of anesthesia services in the NORA setting is held to the same high-quality standards as that of the traditional operating room.

Table 1: NORA locations at UAB

NORA locations at UAB		
Radiation Oncology	Proton Institute	Transesophageal Echocardiography
Cardiac Catheterization Lab	Electrophysiology	MRI
Computed Tomography	Interventional Cardiology	Electroconvulsive Therapy
Labor and Delivery	Advanced Gastroenterology	Interventional Radiology

NORA STRUCTURE

At the initiation of NORA services, proceduralists and staff may be unaccustomed to the requirements of anesthesia provision. Conversely, anesthesia providers are unfamiliar with the conduct of many procedures performed at NORA sites. As familiarity between the anesthesia and procedural teams increases, a collaborative environment of teamwork and communication results. A consistent anesthesia team structure under the guidance of the Medical Director provides uniform and efficient service.

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Medical Director

The Centers for Medicare and Medicaid Services Conditions of Participation for hospitals require that a qualified doctor of medicine or osteopathic medicine direct all anesthesia services². As NORA case volumes increase, healthcare facilities and departments benefit from a dedicated Medical Director. This team leader oversees the NORA services' operational aspects and works collaboratively with medical directors of the various procedural locations and service lines, nursing, and hospital leadership. Given the older population with increased comorbidities typically encountered in NORA locations, particular attention is paid to protocols and quality improvement projects aimed at ensuring patient safety while optimizing efficiency and throughput. Additional Medical Director responsibilities include ensuring that NORA care provision is consistent with departmental, institutional, and regulatory policies and procedures. The medical director also oversees the anesthesia resident NORA education module, a topic now deemed essential for trainees by the American Board of Anesthesiology³.

Attending Anesthesiologist Staffing

NORA locations are often distant from the operating suite's numerous providers and available equipment. An attending anesthesiologist assigned only to a given NORA location leads the anesthesia team. At UAB, cardiac anesthesiologists provide NORA care for patients undergoing interventional cardiology procedures such as transcatheter valve replacements and clips. A small group of general anesthesiologists with experience and clinical interest in NORA staff the other sites. Familiarity by a dedicated team with the NORA practitioners, procedures, personnel, equipment, and process flow improves efficiency and satisfaction while maximizing safety. An additional benefit of a dedicated NORA team is the streamlined quality improvement process, which monitors current practice patterns and implementation of new evidence-based protocols. Facilitated by the NORA Medical Director, successful strategies can be immediately adopted, and others quickly improved.

CRNA Staffing

UAB utilizes the anesthesia care-team model. The team approach is especially crucial for NORA sites given that physical distance often precludes immediate assistance in emergencies. Additionally, procedure complexity often necessitates deep sedation or general anesthesia, usually in the setting of significant patient comorbidities. Anesthesia care-team members work together to formulate a patient-specific, precise anesthesia plan to minimize complications.

Analogous to physician staffing, core teams of Certified Registered Nurse Anesthetists (CRNA) with expertise and clinical interest in NORA primarily staff each site. This staffing model is well-received in each location, as team members become familiar with individual proceduralist's preferences and location process flow. Additionally, participation in a dedicated care team provides considerable job satisfaction to each CRNA. On occasion, scheduling flexibility requires a substitute provider in one of these locations. All anesthesia providers have access to site-specific decision-support tools ("jump sheets") to familiarize themselves with practices, procedures, protocols, and expectations.

PATIENT SELECTION, PREPARATION, AND OPTIMIZATION

Often times patients scheduled for NORA procedures are deemed "too sick" for a formal procedure in the operating room. These patients may present to the NORA suite in an unstable condition or with suboptimally managed disease. Older and higher-risk patients often undergo NORA procedures⁴. However, as NORA services and procedural technology continue to advance and younger patients are also opting for less invasive treatment.

Preanesthesia assessment of NORA patients is challenging as they are often referred to tertiary care centers from the community setting for a procedure without previous engagement with the UAB Health System. The proceduralist may have limited knowledge of the patient's medical history, placing an added emphasis on preprocedural evaluation by the anesthesia team. Many of these patients live some distance away from the procedural center and may be unwilling or unable to travel for a preanesthesia assessment, requiring a day-of-procedure evaluation. Moreover, the rapid-turnover nature of most NORA sites puts additional pressure on providers to maintain efficiency. Despite these constraints, the American Society of Anesthesiologists (ASA) Guidelines for Preanesthesia Evaluation must be applied to all NORA patients. Providers conducting the preanesthesia assessment carefully consider procedural factors, such as table rigidity and unusual positioning, along with patient factors such as obstructive sleep apnea and morbid obesity when formulating a plan for sedation or anesthesia.

Table 2: ASA Guidelines for Preanesthesia Evaluation for NORA patients

ASA Guidelines for Preanesthesia Evaluation Minimum Requirements
<ul style="list-style-type: none"> • Patient interview, including review and conduct of: <ul style="list-style-type: none"> ◦ Medical, surgical, anesthetic history ◦ Medication reconciliation ◦ Physical examination
<ul style="list-style-type: none"> • Review of relevant diagnostic information and laboratory tests, including preoperative COVID-19 testing, as applicable
<ul style="list-style-type: none"> • ASA physical status designation
<ul style="list-style-type: none"> • Formulation and discussion of anesthetic plan and shared decision-making with informed consent to proceed

PACT Role

The Preoperative Assessment, Consultation, and Treatment Clinics (PACT) at UAB are ambulatory clinics staffed by a multidisciplinary perioperative team. Patients scheduled for NORA procedures are evaluated by the PACT in person, or by telephone or Telehealth engagement. The history and medication reconciliation is completed electronically with the physical examination completed by a Nurse Practitioner on the day of the procedure. Relevant laboratory studies are ordered according to established protocol and obtained when the patient presents for the procedure. Modifiable risk factors for poor outcomes are identified, such as malnutrition and continued tobacco use, and patients are engaged in optimization strategies. Financial counseling and insurance precertification are conducted at the time of the patient assessment.

Table 3: PACT Team Composition

Number Staff	Role
6	Attending anesthesiologists with clinical interest and specialization in Perioperative Medicine
30	Certified Registered Nurse Practitioners
14	Registered Nurses
7	Patient Care and Laboratory Technicians
2	Anesthesiology Residents
7	Financial Counselors

Risk Stratification

Procedural and operative risk is a function of healthcare factors, including elements specific to the type and magnitude of the procedure and anesthesia, patient factors related to particular comorbidities, and socioeconomic factors such as access to healthcare⁵. Deciding to have surgery is a complex consideration of risks, short- and long-term benefits, alternatives, and effects on longitudinal health. Many patients choose to undergo procedures in the NORA setting because they are suboptimal candidates for a more invasive procedure. Proceedings conducted in the NORA suite are not without risk of adverse cardiac or pulmonary events. All patients scheduled for NORA procedures undergo the same cardiac risk stratification as those destined for the traditional operating room, including MACE estimation using validated tools, such as the MICA, RCRI, or NSQIP. Even though patients may undergo a less invasive procedure, general anesthesia is still commonly used for these procedures. The ARISCAT preoperative pulmonary risk index identifies patients at risk for postoperative pulmonary complications. This stratification allows for the implementation of perioperative risk reduction strategies or modification of procedural and anesthetic techniques. In addition to improving patient care and safety, preoperative patient evaluation and optimization reduces the number of day-of-procedure delays and cancellations, further improving NORA site efficiency. Reduction of risk also reduces costs and potential for complications. A safer, more efficient experience improves patient and proceduralist satisfaction.

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OVERCOMING CHALLENGES UNIQUE TO NORA

It is well documented that standardization of processes reduces variation. Numerous challenges face anesthesia providers when working in NORA locations. Each NORA site has its own challenges and perils. Review of preprocedural jumpsheets ensures that each anesthesia provider is acquainted with each location and unique circumstances.

Table 4: Challenges of providing NORA services (not all-inclusive)

Challenges encountered when providing NORA services
Procedure rooms designed without anesthesia needs in mind; may be lacking necessary connections (oxygen, suction, etc) or limited work space
Proceduralist and room staff unfamiliarity with anesthesia, anesthesia equipment, and potential complications, such as airway loss
Limited availability of emergency equipment
Medications may not be readily accessible
Sicker, inadequately optimized patients may poorly tolerate supine positioning on firm table, or may be claustrophobic under drapes
Procedural bed/table frequently rigid with limited mobility and inability to adjust position
Frequent table movement places tension on IV lines and anesthesia circuit
Field avoidance and need for anesthesia circuit extenders
Occult bleeding under drapes and difficulty obtaining blood products
Expectation of short emergence times and rapid room turnover
Lengthier travel distance from procedural suite to recovery area
Recovering nurses may be unfamiliar with patients having undergone general anesthesia
Goals of efficiency and patient safety may appear competing
Dark environment, increasing opportunity for medication errors
Difficult access to patient due to monitors or fluoroscopy equipment

One of the hazards confronting the anesthesia provider working in the NORA setting is exposure to ionizing radiation. Previous studies have demonstrated that the anesthesia provider's radiation exposure exceeds that of the interventionalist⁶. The University of Alabama at Birmingham provides each CRNA with their own full upper and lower body lead coverings and radiation dosimetry badges to monitor and limit exposure.

Room configuration presents a significant barrier to the provision of NORA services. Most NORA procedural suites were not designed to accommodate anesthesia equipment and providers. When UAB began offering NORA services, procedural suites were modified to accommodate an anesthesia cart, machine, and provider and allow room for resuscitation. Standardizing the configuration of each NORA location reduces variation in practice and improves procedural efficiency. As additional NORA sites are developed or existing sites undergo renovation or expansion, the anesthesia team is involved in the design process from conception to ensure that adequate space is available for provision of anesthesia services.

Figure 1: Photos demonstrate the standardization of configuration of the anesthesia workstation, physiologic monitors, and anesthesia equipment cart in (a) a traditional operating room and (b) a NORA procedure room.



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Nursing and procedural staff in NORA locations have varying degrees of familiarity with the anesthesia service. Staff education increased familiarity and comfort with the anesthesia provider's role. Nursing and procedural staff underwent training and education and function identically to their operating room counterparts.

The NORA sites have ready access to an anesthesia supply room, airway adjuncts such as video laryngoscopes, and malignant hyperthermia resources. Dedicated perioperative technicians assist with anesthesia preparation and room clean-up to expedite room turnaround time.

CHOICE OF ANESTHESIA IN NORA

As interventional diagnostic and therapeutic procedures increase in complexity, and patient comorbidities continue to worsen, proceduralist's at NORA sites request the anesthesia team as an alternative to conscious sedation administered by non-anesthesia providers. Monitored anesthesia care (MAC) sedation is the predominately utilized anesthesia technique in NORA sites. The nature of the procedure, depth of sedation needed, or patient comorbidities necessitate general anesthesia in select cases. Despite the presence of providers trained in its administration, the provision of procedural anesthesia of any type is not without risk. Recently closed claim analyses have found that adverse respiratory events and other complications were potentially preventable, suggesting that monitoring and safety protocols in NORA sites conform to the same standard as those in traditional operating rooms^{7,8}.

METHODS OF QI AND PROCESS IMPROVEMENT IN NORA

The delivery of safe, high-quality, evidence-based care requires performance measurement and advancement through continuous quality improvement and benchmarking. Relevant quality metrics applied to anesthetics delivered in the traditional operating room setting also apply to the NORA suite, and include major and minor adverse events, administrative events, process events, and patient satisfaction. Factors of safety, effectiveness, improved patient experience, and reduced healthcare costs are drivers of anesthesia practice and align with the Institute for Healthcare Improvement's quadruple aim of improved outcomes, improved clinical and patient experiences, and reduced healthcare costs. Evaluation of quality metrics drives improvement initiatives using PDSA methodology to provide the safest, evidence-based anesthesia experience in both NORA and the traditional operating room setting.

Table 5: Examples of NORA quality metrics (not all-inclusive)

Major events	Minor events	Administrative events	Process events
Perioperative aspiration	Dental trauma	> 30 minute case delay	Unanticipated difficult intubation
Myocardial infarction	Corneal abrasion	> 2 hours PACU stay	Equipment problem
Perioperative stroke	PONV/PDND	Case cancellation	Medication error
Cardiac arrest	Poorly controlled pain	Unplanned hospital admission	Naloxone use
Death	Poorly controlled hyperglycemia	Unplanned ICU admission	Antibiotic administration compliance
Transfusion reaction	Hypothermia < 35°C	Documentation compliance	Patient complaint

ADDING VALUE

Several studies document that the PACT's support of the anesthesia and surgical service lines results in increased efficiency and reduced healthcare costs, complications, unplanned admissions, and length of stay. Standardization of documentation through automated anesthesia record-keeping and the support of an Information Technology and Informatics division embedded within the Department of Anesthesiology and Perioperative Medicine maximizes reimbursement and compliance with value-based metrics. Additionally, the provision of NORA services allows proceduralists to complete complex procedures more efficiently and to increase daily case volume. The ability of the anesthesia provider to provide breath holding maneuvers allows for the acquisition of higher-quality images. The PACT staff's preoperative telephone or Telemedicine assessment of NORA patients increases patient satisfaction and contributes to a safe and streamlined process and reduced cancellations in the Heart and Vascular Center from 12% to less than 4%.

NORA IN THE AGE OF COVID-19

The onset of the COVID-19 pandemic required modification in perioperative preparation, scheduling, and patient disposition. As COVID-19 testing capabilities increase, UAB tests all patients undergoing conscious and moderate sedation, MAC, and general anesthesia, in both NORA and traditional operating room sites. All patients undergo reverse transcriptase RNA polymerase chain reaction testing within 72-hours of their scheduled procedure⁹. Patients also undergo symptom screening upon presentation to the NORA site. Procedures are deferred for patients testing positive until symptoms resolve, and a repeat test is negative. Established testing protocols conserve significant quantities of PPE and increase patient and provider safety.

SUMMARY AND CONCLUSION

The provision of anesthesia services in the NORA setting should be identical to that of the traditional operating room to reduce variation in practice. While there are particular challenges specific to these remote locations, the implementation of structured anesthesia teams ensures providers are familiar with relevant considerations of a given NORA site. As older, sicker patients undergo increasingly complex procedures, anesthesia providers must continue to work collaboratively with other departments to ensure adequate preoperative medical optimization as well as safe anesthetic management. NORA services place anesthesia providers in a unique position to add significant value to healthcare facilities, improve population health through preoperative medical optimization, and reduce patient risk of traditional surgery. Collectively taken, the NORA service at UAB working collaboratively as part of a multidisciplinary team drives the facility toward realizing the quadruple aim of improving outcomes, improving clinical and patient experiences, and reducing healthcare costs.

References:

1. Nagrebetsky, A, Gabriel, RA, Dutton, RP, and Urman, RP. Growth of nonoperating room anesthesia care in the United States: A contemporary trend analysis. *Anes Analg*. 2017;124(4):1261-1267.
2. 42 CFR 482.52 Condition of Participation: Anesthesia services
CMS State Operations Manual Appendix A; https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/som107ap_a_hospitals.pdf; accessed 6/22/2020.
3. Boggs, SD, Barnett, SR, and Urman, RD. The future of nonoperating room anesthesia in the 21st century: Emphasis on quality and safety. *Curr Opin Anesthesiol*. 2017;30(6):644-651.
4. Chang, B, Kaye, AD, Diaz, JH, et al. Interventional procedures outside of the operating room: Results from the National Anesthesia Clinical Outcomes Registry. *J Patient Saf*. 2018;14(1):9-16.
5. Aronson, S, Murray, S, Martin, G, et al. Roadmap for transforming preoperative assessment to preoperative optimization. *Anes Analg*. 2020;130(4):811-819.
6. Anastasian, ZH, Strozyk, D, Meyers, PM, et al. Radiation exposure of the anesthesiologist in the neurointerventional suite. *Anesthesiology*. 2011;114(3):512-520.
7. Chang, B, and Urman, RD. Non-operating room anesthesia: The principles of patient assessment and preparation. *Anesthesiol Clin*. 2016;34(1):223-240.
8. Woodward, ZG, Urman, RD, and Domino, KB. Safety of non-operating room anesthesia: A closed claims update. *Anesthesiol Clin*. 2017;35(4):569-581.
9. Morris, M, Pierce, A, Carlisle, B, et al. Preoperative COVID-19 testing and decolonization. *Am J Surg*. 2020;doi: [10.1016/j.amjsurg.2020.05.027](https://doi.org/10.1016/j.amjsurg.2020.05.027).

Evidence-Based, Best Practices in Preoperative Medication Reconciliation and Patient Instruction

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INTRODUCTION

Approximately 90% of US adults aged 62-85 years use at least one prescription medication. While a significant percentage of these patients are at risk for major drug-drug interactions, up to 50% do not take their medications as prescribed¹. The perioperative period is a vulnerable time characterized by the administration of multiple medications in a brief time and exponentially increases the risk of adverse drug events (ADEs). ADEs are preventable through medication reconciliation (MedRec) and the provision of thorough preoperative medication instructions. Many barriers contribute to the inadequacies of MedRec and the delivery of preoperative medication instructions. These barriers include the presence of comorbidities, lack of patient knowledge of current medications, and cultural, racial, and educational factors that cause non-compliance with recommended medication regimens².

MedRec is a useful and redundant process with proven utility at detecting and mitigating errors, such as ADEs, that potentially cause patient harm. Comparing medications taken against those prescribed identifies and reduces the potential for omission errors, drug-drug, and drug-disease interactions, and other discrepancies. Poor access to accurate and clinically relevant medication information significantly limits the value of MedRec. Lack of integrated medication history information across multiple clinical settings and a short time to find accurate details are significant causes of medication discrepancies. Obtaining precise and easily accessible medication history information is extremely desirable because it reduces medication discrepancies and improves patient safety. While few published studies describe how to do the process effectively or outline the associated costs with design and implementation, formal MedRec programs reduce errors. Standardized preoperative medication instructions and management, guided by health literacy considerations, improves the quality of care, and reduces ADEs during the perioperative period. This review aims to discuss MedRec strategies and medication instructions, and emphasize the need for standardizing preoperative medication management through evidence-based, best-practice consensus guidelines with a patient and procedure-specific focus.

ADVERSE DRUG EVENTS

Approximately 190 million Americans take at least one prescription drug. About 20% to 50% of those patients do not take their medications as prescribed and are noncompliant with therapy. Medication non-compliance increases health risks associated with ADEs and costs of up to \$290 billion annually³. ADEs cause approximately one death per day in the United States, and 80% of these deaths are related to medication errors⁴. ADEs result in an average cost of about \$3500 per event and increase hospital stays by approximately 3 days. More severe ADEs may result in additional costs and even greater lengths of stay. To address this issue, The Joint Commission adopted medication reconciliation as a key National Patient Safety Goal. See Table 1.

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Table 1: Points of ADE occurrence

Points of adverse drug event occurrence	
<ul style="list-style-type: none"> • Order communication <ul style="list-style-type: none"> ◦ Verbal (sound-alike errors) ◦ Written (poor legibility; decimal errors) 	<ul style="list-style-type: none"> • Medication use <ul style="list-style-type: none"> ◦ For non-intended purpose ◦ Use of another patient's medication
<ul style="list-style-type: none"> • Product labeling 	<ul style="list-style-type: none"> • Distribution
<ul style="list-style-type: none"> • Packaging (look-alike errors) 	<ul style="list-style-type: none"> • Administration
<ul style="list-style-type: none"> • Naming (sound-alike errors) 	<ul style="list-style-type: none"> • Education
<ul style="list-style-type: none"> • Compounding 	<ul style="list-style-type: none"> • Monitoring
<ul style="list-style-type: none"> • Dispensing 	<ul style="list-style-type: none"> • Points of transition of care

ADEs are defined as unexpected or dangerous medication reactions and are a common source of accidental patient injury. The incidence of ADEs increases significantly as the number of medications increases. Preoperative MedRec allows for the identification and mitigation of polypharmacy, common in presurgical patients, particularly the geriatric population. The use of certain chronic medications potentially interferes with intravenous and inhaled anesthetics and other drugs; therefore, MedRec is an essential part of the preoperative evaluation. The patient's preoperative evaluation in the Preoperative Assessment, Consultation, and Treatment Clinics (PACT) frequently represents entry into the perioperative continuum. This appointment provides an excellent opportunity to implement MedRec and begin the process of ADE prevention or reduction.

PROCESS OF MEDICATION RECONCILIATION

MedRec is not a new process but has become formalized over the past 15 years. The MedRec process took on a sense of urgency in 2004 when the Institute for Healthcare Improvement included it in the recommended practices of the 100,000 Lives Campaign⁵. In 2005 and each subsequent year, The Joint Commission included MedRec as one of its National Patient Safety Goals. In 2006, The Joint Commission included a formalized process of MedRec in its requirements for hospital accreditation⁶. See Table 2.

The perioperative MedRec process compares a patient's current documented list of medications against those the patient states they are taking and those of admission, transfer, and discharge orders. While the process is time-consuming, judicious MedRec detects and eliminates errors due to omission and dosing, mitigates polypharmacy issues, and identifies potentially harmful medication interactions.

Table 2: Steps of the Medication Reconciliation Process

The Joint Commission's 5 Steps of Medication Reconciliation
1. Develop a list of current medications at the time of hospital admission or appointment in ambulatory clinic <ul style="list-style-type: none"> a. Include scheduled and as-needed medications, as well as supplements and herbals
2. Develop a list of medications to be prescribed, frequency, and route of administration
3. Compare the medications on the two lists to identify and resolve discrepancies <ul style="list-style-type: none"> a. This comparison should be done by a qualified individual identified by the hospital or clinic, such as a Pharmacist or Registered Nurse
4. Make clinical decisions based on the comparison to mitigate polypharmacy, duplication, and potential adverse interactions
5. Communicate the new list to the patient, appropriate caregivers, and medical providers <ul style="list-style-type: none"> a. Explain rationale for medications added, deleted, or altered, including changes in dose, frequency, route of administration b. Patients should be instructed to provide the new list to their primary care provider c. Patients should be instructed to always carry a current list of medications on their person in the event of an emergency situation

Adapted from: The Joint Commission National Patient Safety Goals Effective January 2020. Available from: https://www.jointcommission.org/-/media/tjc/documents/standards/national-patient-safety-goals/npsg_chapter_hap_jan2019.pdf?db=web&hash=3060F486CA146BD9071F7C2DBF7796A4

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ROLES IN MEDICATION RECONCILIATION

MedRec is a shared responsibility of healthcare providers, including pharmacists, physicians, advanced practice practitioners, registered nurses, and other healthcare providers working collaboratively with patients and their caregivers. Effective models vary between teams and healthcare organizations.

Perioperative medicine specialists encounter patients with varying degrees of health literacy daily and should be mindful of this issue since many patients are reluctant to acknowledge literacy deficiencies. Effective communication of preoperative medication instructions requires both a targeted and tailored approach. Targeted communication approaches are communication strategies adapted to meet specific groups of people, such as those with limited literacy skills, whereas tailored approaches are patient-specific strategies. Communication strategies based on a patient's functional literacy results in high patient satisfaction and improved medication compliance.

Patient Role

The MedRec process is patient-centered with a focus on the patient and the safe use of their medications. The perioperative period is a time of numerous medication changes and additions and a series of care transitions—all of these place the patient at high risk for fragmented care, ADEs, and medication errors. Patients receive instructions to bring their medications, including over-the-counter and supplements, or a list with them that details dose, frequency, and indication to the PACT appointment. Patient involvement and education in the MedRec process help to protect them from harm. Visual reminders displayed in patient examination rooms encourage patients to ask questions about their medications and be active partners in their health maintenance and safe medication use. See Figure 1.

5 QUESTIONS TO ASK ABOUT YOUR MEDICATIONS
when you see your doctor, nurse, or pharmacist.

- 1. CHANGES?**
Have any medications been added, stopped or changed, and why?
- 2. CONTINUE?**
What medications do I need to keep taking, and why?
- 3. PROPER USE?**
How do I take my medications, and for how long?
- 4. MONITOR?**
How will I know if my medication is working, and what side effects do I watch for?
- 5. FOLLOW-UP?**
Do I need any tests and when do I book my next visit?

Keep your medication record up to date.

Remember to include:

- ✓ drug allergies
- ✓ vitamins and minerals
- ✓ herbal/natural products
- ✓ all medications including non-prescription products

Ask your doctor, nurse or pharmacist to review all your medications to see if any can be stopped or reduced.

Visit safemedicationuse.ca for more information.

Logos for IMP, CPSI-ICSP, Canadian Society of Hospital Pharmacists, Société canadienne des pharmaciens d'hôpital, Canadian Pharmaceutical Association, Association des pharmaciens du Canada, SafeMedicationUse.ca, and the Government of Canada are included at the bottom.

Figure 1: 5 Questions to ask about your medications.
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Pharmacist Role

The pharmacist or pharmacy technician's role is to coordinate the MedRec process and take primary responsibility for ensuring effective communication of medication information to patients, caregivers, and other healthcare providers throughout the patient's hospitalization. Embedding a pharmacist or pharmacy technician into the PACT is a significant process improvement initiative that ensures proper MedRec performance and results in greater day-of-surgery compliance². The University of Alabama at Birmingham (UAB) incorporated a hospital pharmacist into the PACT for six months. Patients on five or more prescription medications had their MedRec performed by the pharmacist, a process with highly accurate results. While long-term incorporation of a pharmacist in the PACT is not financially sustainable long-term, the pharmacist developed an evidence-based protocol and instructed the registered nurses on its application.

PACT Team Role

The process of MedRec should occur in a one-on-one setting between the healthcare provider and the patient or patient caregiver. The PACT at UAB delegates this responsibility to a registered nurse, who performs the MedRec using the pharmacist-developed protocol. Patient assessment for recall of medication instructions occurs after the MedRec encounter by a Certified Registered Nurse Practitioner (CRNP). The CRNP reviews the medication list with the patient and advises the continuation or withholding of medications according to evidence-based algorithms. Patients receive an electronic medical record (EMR)-generated, updated medication list in the clinic departure summary. This document provides both a written and illustrated instruction list that reinforces the verbal directions and enhances patient compliance from the PACT with drugs to be continued highlighted. Organization of the medication list into the categories of "Take on Day of Surgery," "May take on Day of Surgery if Needed," and "Do NOT take" increases compliance by up to 50%⁷. Continued medications are highlighted in color in the medication section of the Preanesthesia Assessment note in the EMR to convey continued medications to the day-of-surgery anesthesia team.

BARRIERS TO EFFECTIVE MEDICATION RECONCILIATION

Many barriers exist that contribute to the inadequacies of MedRec, including the patient's lack of knowledge of their home medications, poor provider communication, and non-usability of EMRs⁸. Perioperative care providers often rely on patient knowledge and the ability to recall their home medications to create the initial list. The MedRec process becomes challenging when patients are unable to recall their home medications or suffer from polypharmacy⁹. Poor provider communication is a consequence of patients having multiple providers across different healthcare settings, and each facility having a different EMR, leading to inaccuracies in the medication list. Changes made to a medication, whether added, discontinued, or a dose is changed, causes a communication breakdown between providers and various medication lists between providers and health systems⁸. Initially developed to save time and consolidate healthcare information, EMR system complexity causes difficulty in documenting competently and correctly. Navigating the complexities of the EMR is time-consuming and challenging for staff in the absence of a standardized protocol. Data entry errors lead to inaccurate medication details, increasing the likelihood of medication-related patient errors and ADEs¹⁰.

MEDICATION RECONCILIATION IN THE ERA OF COVID-19

As a result of the coronavirus pandemic, telephone, and telehealth appointments account for 60% of the preanesthesia assessments at UAB. The UAB Patient AccessCenter sends patients a link to the PhreesiaTM Customized Patient Intake Software application one week in advance. Patients securely enter their MedRec information and other patient intake data, into PhreesiaTM, which integrates directly into the EMR. The PACT registered nurse conducts MedRec over the telephone or telehealth with the patient or designated caregiver. After the encounter, patients receive the preoperative medication list, instructions, and departure summary via UAB's secure Patient Portal.

ADDING VALUE THROUGH OPTIMIZATION OF MEDICATION RECONCILIATION

Day-of-surgery case cancellations and delays are a significant source of revenue loss for healthcare institutions. These cancellations and delays are mostly preventable. For the calendar years 2018-2019, only 10 of 409 (2.4%) first case delays or cancellations, attributable to the Anesthesiology service, were medication-adherence related. Several of these occurrences reflected day-of-surgery provider preference (e.g., the provider wanted the patient to take their angiotensin-converting enzyme inhibitor) and did not wholly result from the MedRec process.

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The MedRec process also represents an opportunity for medication optimization. Medications can be adjusted as needed for inadequately controlled chronic disease or instituted for identified abnormalities such as hypokalemia, or statin therapy for primary prevention of cardiovascular disease in high-risk patients.

AUDITING FOR COMPLIANCE

The PACT at UAB is a high-volume clinic, averaging 120 patient evaluations per day. Each week, 30 randomly selected charts undergo process audits for compliance with the prescribed MedRec procedure. Standardization of practice reduces system and provider variation and reduces the likelihood of errors and patient harm. Process audits ensure compliance with the sequential steps of MedRec and provide timely feedback to the leadership team of process effectiveness. See Table 3. Audit results and feedback are shared at monthly team meetings to allow for individual performance improvement, reduce system variation, and ensure compliance with The Joint Commission standards. Continuous Quality Improvement of MedRec occurs using the Plan-Do-Study-Act (PDSA) methodology.

Table 3: PACT MedRec Audit Template

UAB PACT Medication Reconciliation Audit		
Patient name:		
Patient MRN:		
PACT date/Surgery date:		
Planned Procedure:		
Interviewer initials:		
Auditor initials:		
Audit date and start time:		
Was there a medication list in EMR?	Yes	No
If yes, was the medication list usable for order entry?	Yes	No
How many total medications?		
How many medications were missing?		
How many medications were inaccurate?		
How many medications were incomplete?		
How many duplicate medications?		
How many completed regimens?		
Compliance updated on all medications?	Yes	No
Did External Medication History work properly?	Yes	No
Audit stop time:		
Comments		

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COMMUNICATION OF PREOPERATIVE MEDICATION INSTRUCTIONS

Health Literacy in the Preoperative Period

Research indicates that the presentation of health information occurs in a nonpatient-friendly format. Nearly 9 out of 10 adults have difficulty understanding and applying the basic health information presented in healthcare facilities, pharmacies, and community advertising¹¹. Without explicit knowledge and an understanding of disease prevention strategies and self-management of conditions, people are more likely to skip recommended health maintenance protocols and be non-compliant with medications. Medication noncompliance results in higher rates of hospital admissions and emergency department visits, poor health outcomes, increased morbidity and mortality and increased healthcare costs.

Health literacy is the degree to which individuals can obtain, process, and understand the necessary health information and services required to make informed health decisions¹¹. Limited health literacy is a public health problem that affects patients of all ages and ethnicities. It contributes to adverse medical and perioperative events and excessive utilization of healthcare resources, with specific populations being more at risk of low literacy. See Table 4. Patients with limited health literacy are less likely to engage in preventive services, adequately manage chronic conditions, and have a lower self-reported health status and generate more preventable hospital visits and admissions. Limited health literacy contributes to misunderstanding instructions about prescription medication, increased occurrence of medication errors, and higher mortality. Printed material such as preoperative medication lists and other guidelines are frequently written at a reading level above most readers. Many healthcare professionals only employ some of the recommended strategies when interacting with patients with limited health literacy.

Table 4: Groups associated with low health literacy rates

Groups likely to experience low health literacy
• Adults age 65 years and older
• Racial and ethnic groups other than White
• Recent refugees and immigrants
• Education levels less than high school degree or GED
• Incomes at or below the poverty level
• Non-English speaking

Adapted from: U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. (2010). National Action Plan to Improve Health Literacy. Washington, DC.

The direct societal costs of limited health literacy are high, estimated between \$10 and \$236 billion annually, with the potential to escalate to \$1.6-3.6 trillion¹¹. Inadequate health functional literacy results in high indirect costs from an increased incidence of chronic disease and disability, lost wages, and reduced quality and life expectancy. Other resulting issues include difficulty accessing health care and following medical instructions, and poor understanding of medication usage.

Literacy experts note that most US adults read at an eighth-grade level, and 20% of the population reads at or below a fifth-grade level. The fifth-grade level is the standard of functional literacy, but the presentation of most printed healthcare materials is at the tenth-grade level¹². Patients over the age of 65 are particularly disadvantaged as age-related decline in cognitive, visual, and hearing abilities affects their reading and comprehension. Patients and care partners understand medical information better when provided with a clear and concise presentation of a select amount of information, in a non-condescending format, and then assessing recall.

Overcoming MedRec Barriers Through Evidence-Based Communication of Preoperative Medication Instructions

Accounting for the 20% of the population that reads at or below the fifth-grade level, presentation of medical education material, including medication lists and instructions, at a third-grade level allows for optimal comprehension and compliance. Education material, lists, and instructions should include color, sections, pictures or pictograms, and illustration for maximum benefit. EMR-generated, standardized preoperative medication instructions significantly improve patient medication

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adherence on the morning of surgery¹³. EMR-generated medication instructions offer the advantage of listing the patient's reconciled medications, preventing errors from conflicting medication lists, and misreading handwriting. While a standardized medication instruction template significantly improved preoperative medication compliance on the day of surgery, 10% of patients were still not adherent to medication instructions. The patterned template should categorize medications into sections indicating "Take on Day of Surgery," "May take on Day of Surgery if Needed," and "Do NOT take." Medications marked "Do NOT take" should have an accompanying stop date as applicable, such as the case with clopidogrel. The wording of medication instructions in the MedRec and the instruction list should be identical to that on the medication container. See Table 5.

Table 5: Preoperative medication instruction compliance strategies

Factors to improve preoperative medication instruction compliance
• Large print for visually-impaired patients
• Receipt of a preoperative medication instruction sheet
• Provision of verbal and written instructions
• Reorganization of medications into labelled categories
• Use of pictograms or color-coding for patients with low-level functional literacy
• Translated instructions for non-English speaking patients
• Written instructions at 3rd grade level of functional literacy

Providing a visual handout showed a 90.2% improvement in patient recall versus a 24.6% rate with verbal questions alone¹⁴. Artificial-intelligence based software applications are efficient and easy to use, and allow patients to modify, omit, add, or flag medications for follow up ahead of their appointment¹⁵. Electronically combining data from multiple sources, such as hospital EMR and pharmacy and clinic medication databases, revealed an 85% completeness rate and a 91% accuracy rate compared to using one or two sources¹⁶. Studies demonstrate the impact of implementing an electronic tool and standardizing the approach on reconciling drugs and the positive outcome of fewer medication errors¹⁷.

THE NEED FOR CONSENSUS ON PREOPERATIVE MEDICATION MANAGEMENT

Medications that provide physiologic homeostasis are continued preoperatively. The decision to continue, discontinue, or modify chronic medication regimens require thoughtful risk-benefit analysis that considers how the drug interacts with anesthetic agents and how the patient responds to its withdrawal. The complexities of preoperative medication management are a source of considerable inter-provider and inter-institutional variation. Variation in medical practice is a long-recognized factor contributing to poor outcomes and patient harm. Standardizing preoperative medication management through evidence-based, best-practice consensus guidelines with a patient and procedure-specific focus will further reduce patient harm. Standardization also improves operating room efficiency by reducing day-of-surgery delays and cancellations attributable to medication non-adherence.

SUMMARY AND CONCLUSION

The perioperative period presents a heightened risk of ADEs due to numerous points of care transition and medication changes. It is a vulnerable time for patients and an opportunity to optimize the medication list to ensure patient adherence and reduce the risk of ADEs. As healthcare becomes increasingly consumer-driven, the literacy demands of patients already struggling to comprehend their disease and management process, medication instructions, and lifestyle modifications, will increase. The National Academy of Medicine defines quality health care as safe, timely, effective, efficient, equitable, and patient-centered¹⁸. The strategies addressed here are components of quality healthcare delivery and constitute the standard of care. Overcoming barriers within the healthcare system through effective strategies of MedRec and patient instruction at a level they can comprehend is a high-yield opportunity to improve medication adherence and longitudinal health.

References:

1. Qato, DM, Wilder, J, Schumm, LP, et al. Changes in prescription and over-the-counter medication and dietary supplement use among older adults in the United States, 2005 vs 2011. *JAMA Int Med.* 2016;176(4):473-482.
2. Vetter, TR, Downing, ME, Vanlandingham, SC, et al. Predictors of patient medication compliance on the day of surgery and the effects of providing patients with standardized yet simplified medication instructions. *Anesthesiology.* 2014;121(1):29-35.
3. Norby, K, Kainth, K, Ganzel, R, et al. Medication adherence and operating room efficiency for a surgical subspecialty. *Fed Pract.* 2017;34(3):16-19.
4. Shepherd, G, Mohorn, P, Yacoub, K, et al. Adverse drug reaction deaths reported in United States vital statistics, 1999-2006. *The Annals of Pharmacotherapy.* 2012;46:169-175.
5. Berwick, DM, Calkins, DR, McCannon, CJ, et al. The 100,000 Lives Campaign: Setting a goal and a deadline for improving health care quality. *JAMA.* 2006;295:324-327.
6. Wachter, RM. 2012. *Understanding Patient Safety.* (2nd ed.). New York: McGraw Hill Medical, 66-67.
7. Becker, MH, Maiman, LA. Strategies for enhancing patient compliance. *J Community Health.* 1980;6:113-135.
8. Monkman, H, Borycki, EM, Kushniruk, AW, et al. Exploring the contextual and human factors of electronic medication reconciliation research: a scoping review. *Studies in Health Technology and Informatics.* 2013;194:166-172.
9. Shah, C, Ishmael, N, Wright, J. How nurses contribute to medicines reconciliation. *Nursing Management.* 2015;22(2):18-22.
10. Almidani, E, Khadawardi, E, Alshareef, T, et al. Improving medication reconciliation compliance at admission: a single department's experience. *International Journal of Pediatrics and Adolescent Medicine.* 2015;2(3-4):141-146.
11. U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. *National Action Plan to Improve Health Literacy.* Washington, DC; 2010.
12. Safeer, RS, Keenan, J. Health literacy: The gap between physicians and patients. *Am Fam Phys.* 2005;72(3):463-468.
13. Pfeifer, K, Slawski, B, Manley, AM, et al. Improving preoperative medication compliance with standardized instructions. *Minerva Anesthesiol.* 2016;82:44-49.
14. Corbel, A, Baud, D, Chaouch, A, et al. Utility of an algorithm to increase the accuracy of medication history in an obstetrical setting. *PLoS One.* 2016;11(3):e0151205.
15. Long, J, Yuan, MJ, Poonawala, R. (2016). An observational study to evaluate the usability and intent to adopt an artificial intelligence-powered medication reconciliation tool. *Interactive Journal of Medical Research.* 2016;5(2):e14.
16. Pfoh, ER, Abramson, E, Edwards, A, et al. (2014). The comparative value of 3 electronic sources of medication data. *American Journal of Pharmacy Benefits.* 2014;6(5):217-224.
17. Marien, S., Krug, B., & Spinewine, A. Electronic tools to support medication reconciliation: A systematic review. *Journal of the American Medical Informatics Association.* 2017;doi:10.1093/jamia/ocw068
18. Bau, I, Logan, RA, Dezii, C, et al. Patient-centered, integrated health care quality measures could improve health literacy, language access, and cultural competence. *NAM Perspectives.* 2019; Discussion Paper, Mational Academy of Medicine, Washington, DC. <https://doi.org/10.31478/201902a>.

Perioperative Pain Medicine: All about the expectations

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Expectation management is the crux of pain medicine in the perioperative setting. It involves setting goals and realistic discussion of what to expect for a given surgical procedure. The role of the pre-operative visit is multifold. First, identification of patients at risk for difficult to control and refractory post op pain management. These patients may be opioid naïve but have poor baseline coping mechanism and are catastrophizers. In fact, patients who are pain catastrophizers have an exaggerated negative response to pain. They may ruminate extensively about the pain with significant anxiety and as a result have may have increased post op pain, worse patient satisfaction and increased cost and greater healthcare utilization (1).

Identifying such individuals begins in the pre-op clinic or even beforehand in the surgeon's office. They should be screened with a validated scale such as the pain catastrophizing scale. It is a simple and easily performed self-reported tool that can be followed by an intervention such as referral for cognitive behavioral therapy which can potentially modify this baseline negative expectation (1,2).

Other patients at risk include individuals who have an opioid dependence and tolerance history. They may be opioid tolerant as result of a chronic pain condition (both malignant and non- malignant) and chronically taking oral opioids (3). The definition of opioid tolerance varies though per the author's practice, this includes patients using greater than 60 mg morphine equivalents daily. Dosing should be verified via provider accessed prescription drug monitoring program (PDMP). Additionally, patients who may not take oral opioids but have a continuous intrathecal pump with targeted infusions of morphine should also be considered opioid tolerant. Other patients may be opioid tolerant due to maintenance pharmacologic treatment with methadone or buprenorphine. These patients may have a recent or remote substance use disorder and are on medication assisted therapy to treat an underlying addiction and may or may not have a concurrent chronic pain condition.

Identifying such patients early on is a coordinated process. The opioid tolerant patient with chronic pain should be counseled extensively on the expected acute on chronic pain as a result of the surgical procedure. For instance, the pain expected after an endoscopic procedure (e.g. screening colonoscopy) is drastically different than that of a Whipple procedure. All patients, however, should be offered multimodal analgesic options. Opioids should not be the sole analgesic. Instead a consideration for multiple classes of pharmacologic analgesics including gabapentinoids, acetaminophen and NSAIDs, should be utilized (3). A regional anesthetic technique should be the expectation, not a possible option to be determined on the day of surgery. It should also not be a mad-dash on the day of surgery to determine whether the surgeon is amenable to a regional technique. Rather, the benefits of a regional anesthetic technique should preferably be discussed in detail at the pre-op visit. With adequate education and support from surgical colleagues, patients will be empowered coming to surgery and in many cases expect a regional nerve block as a primary analgesic, while minimizing opioids. This may also be part of an enhanced recovery pathway. Furthermore, consideration for long acting local anesthetics including continuous catheter based infusions should be used for patients at highest risk for refractory pain. Preoperative education streamlines the process on the day of surgery, which allows for efficiency and improved patient satisfaction.

Additionally, patients should be counseled preoperatively on inpatient post-operative options for pain management, aside from IV opioids and IV PCA. Ketamine infusions can be used both intraoperatively and postoperatively as an alternative for acute pain management. Although the state/hospital regulations on the use of ketamine (considered an anesthetic) outside of the OR/ICUs may vary, it is the author's experience that ketamine infusions can be extremely helpful in the setting of refractory pain that is not responsive to standard multimodal analgesic and opioids including PCA. Furthermore, a recent Cochrane review also demonstrated a relationship between perioperative ketamine use and a reduction in post-operative pain requirements and intensity (4).

Pre-op opioid reduction for chronic pain patients may also be beneficial. Pre-surgical opioid use has been linked to worsened post- operative outcomes with increased pain, opioid consumption, length of stay, utilization of resources and complications. Consequently, preoperative reduction of opioids has been linked to improved postop status (3,5, 6).

The possibility of pre-operative opioid reduction needs to be well- coordinated with the prescribing opioid provider and may be difficult in patients with longstanding use or with a more urgent procedure. Nonetheless, efforts should made for opioid

reduction and barriers to reduction including co-morbid depression should be treated as well to facilitate opioid tapering (7). Furthermore, the expectation of the intraoperative anesthesiologist should be that intraoperative sympathetic surges as a result of nociception do not necessarily need to be treated reflexively with a short acting opioid such as fentanyl. Emerging evidence suggests that esmolol may have anti nociceptive properties in addition to an opioid sparing effect (8,9). Additionally, increased short-acting opioid use peri-operatively can also lead to opioid induced hyperalgesia, and thus have a paradoxical effect on pain management (10).

For patients on medication assistant therapy, in general, methadone maintenance dosing should be continued with the expectation that a multimodal analgesic pathway with regional anesthesia (if applicable) will be necessary (11). Patients on methadone need to be monitored by electrocardiography for a prolonged QT and avoid concomitant medications that prolong the QT. Buprenorphine, however, is a partial opioid agonist with high mu receptor binding (1000 x morphine) affinity with a long half life of 37 hours! As a result there is a debate in the literature as to whether to stop buprenorphine in advance of the procedure to allow for the efficacy of perioperative opioids used for acute pain or whether to continue. If buprenorphine is continued there may be a very high opioid requirement and if buprenorphine is discontinued the patient is at risk for relapse pre-operatively. Furthermore, it may be a challenge converting back to buprenorphine, once opioid are deemed no longer necessary for acute pain (12,13). This discussion and plan needs to be well communicated to the outpatient buprenorphine provider, the inpatient surgical team as well as the acute and chronic pain team, if applicable.

Another area of interest is the use of medical or recreational marijuana preoperatively. As the use of cannabis and cannabis based products increases with prescriptions for chronic pain as well as legalization in certain states, there is the question of how to counsel patients pre-operatively. Currently, to the author's knowledge there is no standard guidelines/ recommendations for perioperative use. Immediate pre op use places the patient at risk for various complications including pulmonary and cardiac with increased workload. At the same time, there is concern for cannabis withdrawal syndrome, which can also be associated with increased pain. This may be problematic for patients with chronic pain, especially as more consideration is given to the role of CB1, and CB2 receptors in the generation of chronic pain. Additionally there may be a role in the future for perioperative cannabinoids as a co-analgesic, as part of a multimodal opioid sparing technique. However, there is insufficient research at this point to make specific recommendations (14, 15, 16).

Additionally, a discussion should be initiated with the opioid tolerant patient preoperatively regarding pain management upon discharge and the likelihood of post op opioids. The distinction between acute and chronic pain should be also elucidated clearly for patients. Furthermore, unused opioids have been reported in > 50% of post-surgical patients. This may put patients, family members and others at risk for opioid misuse. Post-operative acute pain opioid weaning strategies should be utilized. This includes maximizing non opioids and multimodal analgesics such as NSAIDs, post operatively as well as upon discharge. The outpatient pain provider should be alerted to any postop medication changes and follow up should be arranged. Furthermore some institutions have used the novel strategy of a transitional pain service, which helps with a post discharge pain regimen and aims to wean opioids given for post-surgical pain and minimize the evolution of acute to chronic pain (3).

In summary, the preoperative assessment visit should include education about the perioperative pain experience and realistic expectations. Patients who may be at risk for difficult to control pain, which may include catastrophizers and opioid tolerant individuals should be identified early. The subsequent peri-op pain management plan should be coordinated with all stakeholders including the surgical team, intra-operative anesthesiologist, acute and chronic pain team and outpatient pain provider. While an individualized plan may be necessary depending on the clinical circumstance, including those treated for substance use disorder with methadone or buprenorphine, and the type of surgery and baseline requirements, all patients should be educated on a multimodal analgesic plan and a regional anesthetic. The overall goal should be reduction of opioid usage and should continue upon discharge.

Setting the expectation for pain management is the first step in planning. In fact, a recent article demonstrated that patient's expectations, in themselves, can have predictive value in post op pain and function (17). The initial preoperative assessment visit can set the tone for successful multimodal analgesia as part of the perioperative home.

References:

1. Gibson E, Sabo MT. Can pain catastrophizing be changed in surgical patients? A scoping review. *Can J Surg.* 2018 Oct 1;61(5):311-318.
2. Schütze R, Rees C, Smith A, Slater H, Campbell JM, O'Sullivan P. How Can We Best Reduce Pain Catastrophizing in Adults With Chronic Noncancer Pain? A Systematic Review and Meta-Analysis. *J Pain.* 2018 Mar;19(3):233-256.
3. Soffin EM, Lee BH, Kumar KK, Wu CL. The prescription opioid crisis: role of the anaesthesiologist in reducing opioid use and misuse. *Br J Anaesth.* 2019 Jun;122(6):e198-e208. doi: 10.1016/j.bja.2018.11.019. Epub 2018 Dec 28. Review.

4. Brinck EC, Tiippana E, Heesen M, Bell RF, Straube S, Moore RA, Kontinen V. Perioperative intravenous ketamine for acute postoperative pain in adults. *Cochrane Database Syst Rev.* 2018 Dec 20;12:CD012033.
5. Nguyen LC, Sing DC, Bozic KJ. Preoperative Reduction of Opioid Use Before Total Joint Arthroplasty. *J Arthroplasty.* 2016 Sep;31(9 Suppl):282-7.
6. Rozell JC, Courtney PM, Dattilo JR, Wu CH, Lee GC. Preoperative Opiate Use Independently Predicts Narcotic Consumption and Complications After Total Joint Arthroplasty. *J Arthroplasty.* 2017 Sep;32(9):2658-2662.
7. Scherrer JF, Salas J, Sullivan MD, Ahmedani BK, Copeland LA, Bucholz KK, Burroughs T, Schneider FD, Lustman PJ. Impact of adherence to antidepressants on long-term prescription opioid use cessation. *Br J Psychiatry.* 2018 Feb;212(2):103-111.
8. Bahr MP, Williams BA. Esmolol, Antinociception, and Its Potential Opioid-Sparing Role in Routine Anesthesia Care. *Reg Anesth Pain Med.* 2018 Nov;43(8):815-818.
9. Gelineau AM, King MR, Ladha KS, Burns SM, Houle T, Anderson TA. Intraoperative Esmolol as an Adjunct for Perioperative Opioid and Postoperative Pain Reduction: A Systematic Review, Meta-analysis, and Meta-regression. *Anesth Analg.* 2018 Mar;126(3):1035-1049.
10. Colvin LA, Bull F, Hales TG. Perioperative opioid analgesia-when is enough too much? A review of opioid-induced tolerance and hyperalgesia. *Lancet.* 2019 Apr 13;393(10180):1558-1568.
11. Wenzel JT, Schwenk ES, Baratta JL, Viscusi ER. Managing Opioid-Tolerant Patients in the Perioperative Surgical Home. *Anesthesiol Clin.* 2016 Jun;34(2):287-301.
12. Anderson TA, Quaye ANA, Ward EN, Wilens TE, Hilliard PE, Brummett CM. To Stop or Not, That Is the Question: Acute Pain Management for the Patient on Chronic Buprenorphine. *Anesthesiology.* 2017 Jun;126(6):1180-1186
13. Jonan AB, Kaye AD, Urman RD. Buprenorphine Formulations: Clinical Best Practice Strategies Recommendations for Perioperative Management of Patients Undergoing Surgical or Interventional Pain Procedures. *Pain Physician.* 2018 Jan;21(1):E1-E12.
14. Alexander JC, Joshi GP. A review of the anesthetic implications of marijuana use. *Proc (Bayl Univ Med Cent).* 2019 May 21;32(3):364-371.
15. Huson HB, Granados TM, Rasko Y. Surgical considerations of marijuana use in elective procedures. *Heliyon.* 2018 Sep 15;4(9):e00779.
16. Impact of recreational and medicinal marijuana on surgical patients: A review. Bakshi C, Barrett AM. *Am J Surg.* 2019 Apr;217(4):783-786
17. Tilbury C, Haanstra TM, Verdegaal SHM, Nelissen RGHH, de Vet HCW, Vliet Vlieland TPM, Ostelo RW. Patients' pre-operative general and specific outcome expectations predict postoperative pain and function after total knee and total hip arthroplasties. *Scand J Pain.* 2018 Jul 26;18(3):457-466.

Guidelines/Literature Review Committee Update

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Over the last year, the Committee on Guidelines has been busy working on official SPAQI consensus statements, and barely slowed down during the worst months of COVID-19. One of the main goals of the Committee is “To convene a multidisciplinary group of experts to create specific, evidence-based protocols and recommendations for perioperative care”. We have specifically targeted topics involving preoperative optimization, evaluation, pathways, and clinical protocols that are not currently well covered by existing guidelines or meta-analyses.

SPAQI Recommendations have been published in Perioperative Care and Operating Room Management J (PCORM, our Society's official journal), J of Clinical Anesthesia, Mayo Proceedings, and Anesthesia & Analgesia.

In addition to providing useful, well-researched information to clinicians, these projects have helped engage SPAQI members as well as non-member content experts, and facilitated collaborations with many institutions and other entities outside of SPAQI. Not only is this a great service to our members but also a way to further establish national/international presence for SPAQI. I would like to thank each member of the team for their contributions and the team leaders for coordinating the writing process. Here are the Recommendations and Consensus Statements that have either been published or are forthcoming.

- Frailty Screening recommendations published (J. Clinical Anesthesia 2018).
- Smoking Cessation (Anesthesia & Analgesia 2019)
- Time-Drive Activity-Based Costing (J Med Sys 2019)
- Cognitive Screening: test considerations (J Clinical Anesthesia 2020, PCORM 2020)
- Neurodegenerative syndromes (PCORM 2020)
- Opioid medications (Mayo Clinic Proceedings 2020,)
- Herbals medications (Mayo Clinic Proceedings 2020)
- Launching a Geriatric Surgery Center: Recommendations from SPAQI (J. Am Geriatr Soc 2020)
- Endocrine/Urologic/GI/Hormones/Pulmonary Drugs (Parts 1 and 2, in progress)
- Immunosuppressants/biologics/NSAIDs/antivirals (in progress)
- Psychiatric drugs (in progress)
- Cardiovascular drugs (in progress)

Perioperative Collaborative Practice Committee

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The Perioperative Collaborative Practice Committee continues to be an active participant of SPAQI. Many of us had the opportunity to meet a couple of times in person at the March conference. It was great to put faces to names and voices from our conference calls.

Shpresa Shyti, NP and I had the opportunity to present a breakout session about the role of APP's in perioperative medical clinics. Shpresa presented the advanced practice provider's role in a larger hospital academic setting and preparation for the role, and I was able to present about the APP's role in a smaller regional community hospital setting. We appreciated the feedback that we received from SPAQI attendees interested in collaborative practice in the perioperative setting to optimize patients to proceed to surgery as safely as possible.

We also had a conference call in May, with the focus of that call comparing everyone's workplace changes and approach to preparing patients for surgery in this new COVID world. Different experiences and protocols were discussed and resources were shared to help all of us navigate perioperative medicine in the light of the COVID pandemic. Preoperative COVID testing for example, varied from testing within 24 to 48 hours prior to surgery, to testing as much as a week prior to surgery; due to lack of resources, and institutional protocols developed in response. We all appreciated sharing information directly, as well as access to COVID resources on the SPAQI website. We are looking forward to continued collaboration across our disciplines.

THE LAST BOOK THAT I READ...

Zdravka Zafirova, M.D.

Chair, SPAQI Communications Committee

Editor, SPAQI Newsletter

The Second Mountain by David Brooks. 2019

As we enter our adult life, we define the principles that our lives are based on, we identify our goals and embark on the quest to achieve them. This quest, particularly in the medical field, requires dedication, hard work and at times sacrifices. We hope to be rewarded with achieving our personal and professional goals, and making the world a better place; often we are. Once we reach the pinnacle of our quest – the top of “the first mountain”, whether we have achieved our goals or not entirely, we enjoy the satisfaction of our accomplishments.

However, we also may find ourselves questioning our further direction in life and in need of renewed, enhanced or different purpose to our existence – “the second mountain”. In this contemplative and provocative book, David Brooks explores the philosophy and the human experience of this new journey that many seek and embark on, identifying the moral principles of our commitment and fulfillment.

The Plague by Albert Camus. 1947

The novel “The Plague” is a detailed, deeply analytical fictional look at the impact of an epidemic on individuals and society, an existential exploration into the human nature, relationships and the community. It describes the progression of a specific epidemic –the plague, in a specific city – Oran in Algeria; however, it is a global metaphorical reflection on humanity at some of its most terrifying of times, when disease and death test not only our physical but mental and emotional reactions. In this social, political and philosophical commentary, Camus explores wide-ranging individual and population characteristics and attitudes towards the crisis. On a societal and political level, the author portrays denial of the problems, attempts at minimizing the significance of its impact, distrust in the expertise of the scientists, and faulty crisis management strategies. At the same time, he reflects on the diverse social groups, at times with seemingly contradictory moral imperatives, which collaborate to overcome the destruction of life and well-being. On an individual level, Camus explores a wide range of human characteristics, from cowardice to heroism, from paltriness to generosity, good and bad, sadness and happiness, love and mutual connections. The issues presented include separation from loved ones, personal isolation and lack of support, unemployment and loss of security and stability, economic depression and global destabilization; they have been omnipresent for centuries and remain relevant many decades after the publication of the book and well into the future.

16TH ANNUAL PERIOPERATIVE MEDICINE SUMMIT

MARCH 4 - 7, 2021

The Perioperative Medicine Summit will be Thursday through Sunday, March 4 - 7, 2021 at the Manchester Grand Hyatt in San Diego, CA.

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