

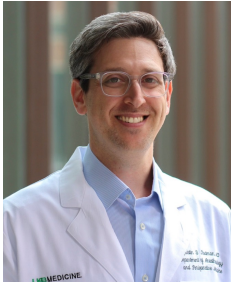
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Outpatient • Office Based • Non-Operating Room

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May 2-4, 2024



**Best Practices in
NORA Operations**

Justin Routman MD MSHA | May 2, 2024

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Disclosures

- I have no financial interests or conflicts to disclose.

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Factors Affecting Operations

Patients

Facility/Staff

Anesthesia

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Blame the Patient?

- New technologies = more treatment options
- NORA Patients:
 - Older
 - More frail/higher ASA PS
 - Increasing in age
 - Soon will be the majority
 - Higher mortality claims vs OR, often respiratory & preventable

Boggs SD et al. Curr Opin Anaesthesiol. 2017;30(6):644-51.
Herman AD et al. Br J Anaesth. 2021;127(5):729-44.
Nagrebetsky A et al. Anesth Analg. 2017;124(4):1261-7.
Woodward ZG et al. Anesthesiol Clin. 2017;35(4):569-81.

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Risk Roulette

- Adaptation of existing risk calculators for optimization
 - General: RCRI, NSQIP, POSPUM, STOP-Bang...
 - Focused: Mortality After Hepatectomy
- Prehabilitation
- Preop Clinics
 - Anesthesia clinics
 - Medicine clinics



Beckerleg W et al. JAMA Intern Med. 2023;183(5):470-8.
 Kristoffersen EW et al. BMJ Open. 2022;12(5):e054206.
 Luu T et al. Anesth Analg. 2023;137(5):1039-46.
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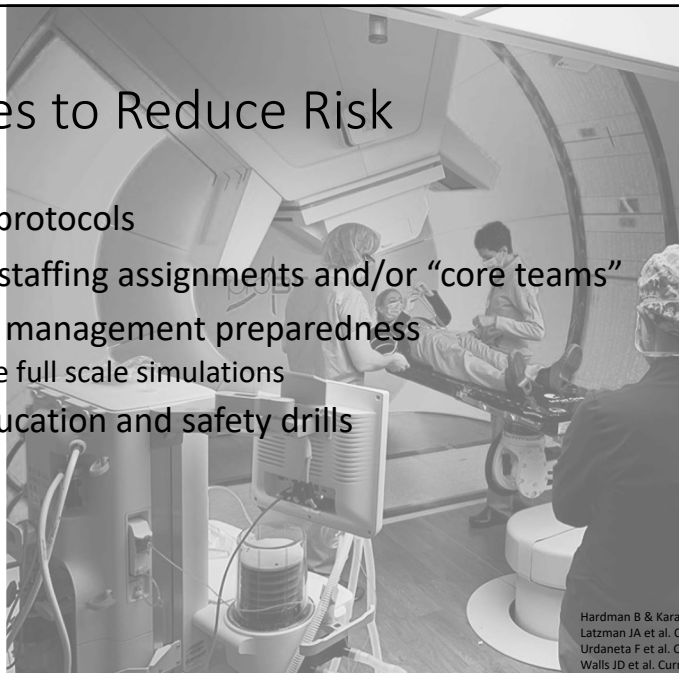
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Strategies to Reduce Risk

- Checklists/protocols
- Consistent staffing assignments and/or “core teams”
- Emergency management preparedness
 - To include full scale simulations
- Routine education and safety drills



Hardman B & Karamchandani K. Curr Opin Anaesthesiol. 2023;36(4):435-40.
 Latzman JA et al. Curr Opin Anaesthesiol. 2022;35(4):479-84.
 Urdaneta F et al. Curr Opin Anaesthesiol. 2022;35(4):493-501.
 Walls JD et al. Curr Opin Anaesthesiol. 2019;32(4):504-10.

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Exclusions

- Any patient with known severe cardiac disease, whether scheduled for MAC or GA:
 - Severe Aortic Stenosis: Valve area < 1.0 cm² OR mean gradient > 40 mmHg
 - Severe Mitral Stenosis: Valve area < 1.0 cm² OR mean gradient > 10 mmHg
 - Congestive Heart Failure: LVEF < 30%
 - Pulmonary Hypertension: PA or RV systolic pressure > 60 mmHg
 - ANY ventricular assist device (B/R/LVAD)
 - Uncorrected Congenital Heart Defect
 - Any uncorrected congenital heart defect requires review by Dr. Routman or Dr. Pierce (or designee), in conjunction with CV anesthesia as required, for potential TKC approval; most cases will likely require JT or NP OR.
- Patient characteristics
- Institutional constraints
 - CAD with DES < 6 months or BMS < 30 days since implantation
 - Any patient with known or suspected severe cardiac disease requires cardiac clearance
- Balance safety and “culture of yes”
 - Patients with history of (or anticipated) difficult intubation requiring fiberoptic bronchoscopy assistance OR an awake intubation
 - Note: history of laryngectomy is acceptable for TKC unless the patient does not qualify based upon other criteria in this document
 - Patients requiring ≥ 3L continuous supplemental home oxygen
 - Patients requiring a home ventilator of any kind, regardless of oxygen requirements
 - Patients with hemodynamic instability or expected need for transfusion
 - Uncooperative/inability to get IV; need for mask/IM induction
 - Acute food bolus/full stomach
 - Age < 14
 - Pregnancy (regardless of gestational age)
 - Either BMI ≥ 55 or patient weight ≥ 440 lbs. (200 kgs)



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Stressing the System

- Geographic isolation
- Staff training/availability
- Procedure room ergonomics
- Number of beds
- Number of events to occur

QUALITY AND PATIENT SAFETY

Anaesthesia clinicians' perception of safety, workload, anxiety, and stress in a remote hybrid suite compared with the operating room

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Schroeck H et al. Br J Anaesth. 2023;131(3):598-606.
Walls JD & Weiss MS. APSF NewsL. 2019;34(1):3-4,21.

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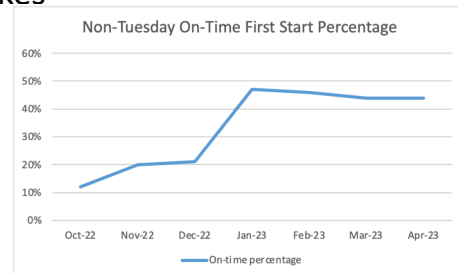
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Unexpected Hurdles

- NORA efficiency typically worse than traditional ORs
- Working as a team can help
- UAB's IR efforts: Learning from our mistakes

5:30 AM	Patient arrives in registration
5:45 AM	Registration complete
5:50 AM	Patient brought to preoperative holding unit
6:00 AM	Preoperative nurse intake and assessment (also including IV start, lab draw, pregnancy test as indicated, etc.) begins
6:55 AM	Radiologist & Anesthesiologist H&Ps/consents complete
7:05 AM	Wheels out of preoperative holding unit
7:10 AM	Wheels into procedure lab
7:55 AM	Induction of anesthesia and patient positioning on table
8:00 AM	Skin prep, draping, etc.
8:15 AM	Pre-procedure time out and subsequent procedure start



Routman JS et al. Curr Probl Diagn Radiol. In Press.
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Evaluating Operations via Productivity

- Common metrics tell an incomplete story
 - Perhaps helpful for group pay scales
 - Limited comparative ability
 - Hard to develop strategy from data
- Additional NORA challenges
 - Geographic separation
 - Block time (or the lack thereof)
 - “God mentality”

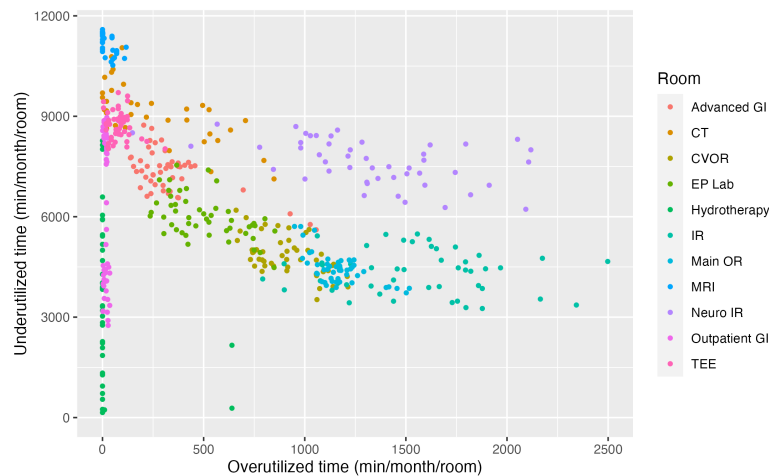
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Comparative Utilization



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Summary

NORA patients are older, sicker

Projected increase in volume necessitates attention to risk reduction

Existing risk calculators have value to balance safety & feasibility

Standardization & preparedness are crucial for NORA

Collaborative efforts can address operational challenges

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Success lies in proactive planning, collaboration, and dedication to patient well-being.



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