Implementation of the Surgical Home and IT Implications

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Vanderbilt Department of Anesthesiology
Uncompromising quality in clinical care, research and education.
Goals and Objectives

At the end of the presentation, the learner should be able to:

• Discuss the core, daily components for a successful Perioperative Consult Service (PCS)
• Discuss the importance of IT for implementing, scaling, and sustaining a PCS
• Understand the economic impact of implementing a PCS at their institution
Paradigm Shift: ERAS via APCS

• Key factors prolonging stay after surgery:
  – Ileus
  – Need for IV analgesia
  – Need for IVF secondary to gut dysfunction
  – Bed rest caused by lack of mobility due to the above

• APCS + ERAS represents a paradigm shift in perioperative care:
  – Re-examines traditional practices, replacing them with evidence-based best practices \textit{when necessary}.
  – Comprehensive in scope, covering all components of patient’s perioperative journey with surgeon \textit{and} anesthesiologist
Our Methods

• **Philosophy**
  – Standardization and automation, where possible, improves routine processes of care
  – Adherence to principles more important than recipe
  – Warning, this is a protocol – it does not have a brain
  – MUST be data driven

• **Metrics**
  – LOS, Readmissions
  – Pre-op/Intraop “Compliance”
  – Postoperative “Compliance”
  – PDSA to Learn of Other Areas for Improvement
A Day in the Life of APCS
Automated Systems: VAPIR
Dear Team,

You will be caring for patients on the Anesthesiology Perioperative Consult Service tomorrow.

For perioperative 1 patients, the service will care for the patients while in-house, including writing preoperative medication orders and performing relevant blocks. The new patients on the perioperative 1 protocol tomorrow are below.

The clinical guidelines can be found here: [https://www.mc.vanderbilt.edu/cgi-php/vunet/index.html?req_url=%2Fvunet%2Fvumc.php%3Fsite%3Danesfaculty%26doc%3D38656&vulf=1](https://www.mc.vanderbilt.edu/cgi-php/vunet/index.html?req_url=%2Fvunet%2Fvumc.php%3Fsite%3Danesfaculty%26doc%3D38656&vulf=1) (copy and paste if link is dead)

Please review the appropriate protocol for your patient if you are unfamiliar with these, as there are key intraoperative components of the protocols and differences between protocols. The surgical oncology patients follow the colorectal protocol.

*We have added the new TRAM/DIEP free flap patients to the perioperative service, the new protocol has been added to the above link.*

*We have also added the new Donor Nephrectomy patients to the perioperative service, the new protocol has been added to the above link.*

*Please add the lidocaine infusion to your PACU orders and bring the drip to PACU.*

*For bariatric surgery patients, please give either 1mg dialudid or 5mg methadone IV (preferred) if no contraindications.*
Clinical Pathways

Vanderbilt Institutional Guidelines:

- Acute Ischemic Stroke - Anesthetic Management (PDF)
- Rational Perioperative Use of Albumin (PDF)
- Ventral Hernia Repair Guidelines (PDF)
- Anesthesia for Weight Reduction Surgery (PDF)
- Anesthesia Guidelines for Colorectal Surgery (PDF)
- Anesthesia for Mastectomy (PDF)
- Living Donor Nephrectomy Anesthesia Guideline (PDF)
- Protocol for TRAM/DIEP free flap Surgery (PDF)

Guidelines Published by External Sources:

- American Society of Anesthesiologists (ASA)
- Am. College of Cardiology (ACC)/Am. Heart Association (AHA) Joint Guidelines (full list)

VUMC Department of Anesthesiology Standard Operating Procedures

- Radiofrequency Ablation (RFA) for Trigeminal Neuralgia (PDF)
- Bronchoscopy Room (PDF)
V2.0: Automated Daily Case Email

- Daily Case Assignments by Location
- Preop Evaluation Record
- Last Anesthesia Care Record
- Link to Care Pathway

Major Limitation
Major Perioperative Outcomes

Outcomes:
- LOS
- CMI
- Postop ICU Txfr
- Postop Intub
- Readm w/in 30d

- All services covered by PCS
- Can select by service line or case type
- Can alter timeline
Care Pathway Bundle Compliance

Multimodal Analgesia

PONV Utilization

Opioid Use
- preop
- intraop
- PACU
Savings by Service
Projected Savings for Continuing and Expanding the ERP and APCS at VUMC: A Model for Savings
Estimated Annual Bed-Day Savings with ERP and APCS Expansion*

*This model assumes saving 1 day of median rLOS per population, which was actually accomplished in CRS patients in FY 15.

~1700 bed-days saved, plus...
*This model calculates the additional patients to be served at the same hospital bed utilization/cost basis as baseline and assumes saving 1 day of median rLOS, which was actually accomplished in CRS patients in FY 15.
Precision Medicine
and
Perioperative IT
Want to Know My Future?

New genetic tests can point to risks—but not always a cure

BY BONNIE ROCHMAN

**WHAT IS IT?**

Precision medicine is an emerging approach for disease prevention and treatment that takes into account people's individual variations in genes, environment, and lifestyle.

The Precision Medicine Initiative® will generate the scientific evidence needed to move the concept of precision medicine into clinical practice.

**WHY NOW?**

The **time is right** because of:

- Sequencing of the human genome
- Improved technologies for biomedical analysis
- New tools for using large datasets
Without Precision Medicine:

Patient

- Same Therapy
  - Some Benefit, Others Do Not
  - Benefit
  - No Benefit
  - Adverse Effects

With Precision Medicine:

Each Patient Benefits

DNA Tests

Tailored Therapy
The Missing Link

Highly Skilled, Uncoordinated Chaos

Enhanced Recovery After Surgery (ERAS)

Specialist Consult Service Implementing ERAS

High-Risk Surgery Consult Service; ERAS for all others

Dynamic Risk Profiling (DRP)

DRP with machine learning program (MLP)

Precision Periop Medicine: Genomics + DRP + MLP
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Direction of Medicine and Anesthesiology
Dynamic Risk Profiling:
Next Steps Beyond Care Pathways and Guidelines

**Verticals:** Longitudinal through the care path of a patient population or procedure type - ERAS

**Horizontals:** Across all or many patients by disease or entity

- PONV Prophylaxis by #RF
- Mgmt of patient w/ CHF - biomarkers
- Mgmt of CV medications
- Intraoperative Vent/NMB mon
- Dynamic Risk Profiling— PPC, MACE, Delirium, etc
The Block Box(es):

1) Unless they contact us with a question/problem, how do we know what happens to a patient before and after surgical hospitalization?

2) We want to know in order to:
   - improve customer service outside of hospital
   - improve compliance with perioperative plan
   - prevent unnecessary and costly readmissions
A Novel Patient-Centered App for Perioperative Care