

A Multidisciplinary Systems-Based Approach to Managing Innovation and Preventing Retained Surgical Items

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Background

- Surgeon-led innovations and off-label modifications introduce workflow variability by altering the characteristics of countable items and how they must be tracked.
- OR workflows are fast-paced and cognitively demanding, leaving nurses and surgical technologists focused on maintaining flow rather than pausing to clarify how unfamiliar or modified items should be accounted for.
- Hierarchical dynamics can further limit clarification, as staff may hesitate to interrupt or question deviations during a case.
- Rapid workflow, constrained communication, and inconsistent shared mental models together heighten the risk of retained surgical items (RSIs) and compromise intraoperative safety.

Methods

Three-phase systems-design approach:

Phase 1: Insight Gathering & Initial Design

- Semi-structured interviews (n=27)
- 10-item survey
- Key themes:
 - Ambiguity around permissible practices
 - Unclear decision authority
 - Moral distress from inconsistent safety behaviors

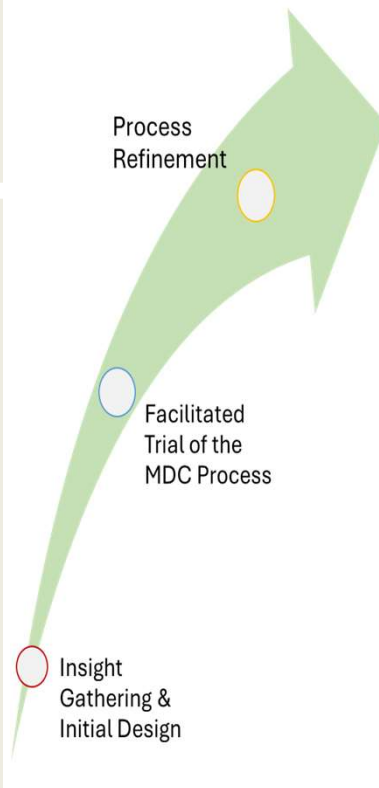
Phase 2: Facilitated Trial of the Multidisciplinary Committee (MDC) Process

- Rumel tourniquet used as a hypothetical "novel" technique.
- Components: standardized surgical presentation, nursing workflow/safety analysis, facilitated multidisciplinary discussion.
- Objectives: assess clinical value, identify RSI-mitigation needs, determine staff education requirements.

Phase 3: Process Refinement

- Evaluation of three review models:
 - Integration into existing leadership meetings
 - Ad hoc multidisciplinary groups
 - Fully structured, systems-based MDC model
- Structured MDC demonstrated strongest feasibility, engagement, and perceived fairness.

Multidisciplinary decision-making strengthens interprofessional collaboration, but its reliability and value to perioperative nursing depends on structured processes, clear roles, and visible executive sponsorship.



Executive Sponsorship
Visible, even if not present in meeting

Required MDC Quorum
≥2 Surgeons (including one not involved in proposed technique)
Nursing/OR Leadership
Frontline Nurse and/or ST
Perioperative Education
Quality/Risk/Safety Representative

Standardized Pre-work
Description of technique
Clinical rationale
Comparison to alternatives
Impact on countable items
Proposed accounting strategy
Education/training needs

Scripted Meeting Structure
Welcome/Purpose Statement (5 min)
Surgeon's Presentation (10-15 min)
Clarifying Questions (5 min)
Risk/Workflow Discussion (15-20 min)
1. Nursing/ST reps & leaders
2. Periop education & Risk/Quality/Safety
3. Other surgeons/clinical leaders
Consensus and Next Steps (5-10 min)

Results



Composition

Problem: Multidisciplinary presence alone did not counter hierarchy
Effect: Existing authority gradients influenced participation, diminishing nursing input



Structure

Problem: Lack of standardization/decision clarity
Effect: Ambiguity allowed the conversation to be reshaped by dominant inputs, obscuring the decision scope and reducing psychological safety for others to contribute



Executive Sponsorship

Problems: Overwhelming presence vs. insufficient visibility
Effect: Too much executive presence shifted communication dynamics; too little failed to signal organizational expectations for safety and standardization.

Implications for Nursing Practice

Structure protects the nursing voice through predictable roles and processes.

Clear expectations lighten cognitive and moral load for perioperative staff.

Transparent sponsorship builds psychological safety for speaking up.

Systems design prevents unsafe improvisation during high-pressure moments.

Shared authority improves collaboration across disciplines.

Standardization enables competency growth and improves onboarding.

Conclusions

Multidisciplinary review is most effective when grounded in clear structure, defined decision rights, and visible leadership support.

This model strengthens collaboration, enhances consistency in evaluating surgeon-led innovations, and provides a scalable framework for sustaining safe practice in fast-paced surgical environments.

Scan for references/to read the paper:

