Notable Grand Rounds
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Michael & Marian Ilitch
Department of Surgery

Wayne State University
School of Medicine

Detroit, Michigan, USA

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Ryan D. Rosen DO

CHANGE OF PLAN: STRATEGIES FOR MANAGING INTRAOPERATIVE CONSULTATIONS AND UNPLANNED PROCEDURES

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About Notable Grand Rounds

These assembled papers are edited transcripts of didactic lectures given by mainly senior residents, but also some distinguished attending and guests, at the Grand Rounds of the Michael and Marian Ilitch Department of Surgery at the Wayne State University School of Medicine.

Every week, approximately 50 faculty attending surgeons and surgical residents meet to conduct postmortems on cases that did not go well. That “Mortality and Morbidity” conference is followed immediately by Grand Rounds.

This collection is not intended as a scholarly journal, but in a significant way it is a peer reviewed publication by virtue of the fact that every presentation is examined in great detail by those 50 or so surgeons.

It serves to honor the presenters for their effort, to potentially serve as first draft for an article for submission to a medical journal, to let residents and potential residents see the high standard achieved by their peers and expected of them, and by no means least, to contribute to better patient care.

David Edelman, MD
Program Director
The Detroit Medical Center

and

Professor of Surgery
Wayne State University School of Medicine

Change of Plan: Strategies For Managing Intraoperative Consultations and Unplanned Procedures

Ryan D. Rosen DO

Chief Resident, General Surgery
The Detroit Medical Center

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Introduction

Intraoperative consultations (IOCs) and unplanned surgical procedures present a unique intersection of technical challenge, ethical ambiguity, and legal complexity. Despite their frequency and importance in clinical practice, these encounters often receive little structured attention in surgical education or professional guidelines. Traditionally, surgical culture emphasized decisiveness and self-reliance—qualities celebrated in aphorisms like "sometimes wrong, but never in doubt." Yet modern surgical practice increasingly values interprofessional collaboration, humility, and recognition of one's limits.

This paper explores the evolving role of intraoperative consultations within general and vascular surgery, highlights the ethical and legal principles governing decision-making in real-time, and offers a structured framework for surgeons to navigate these scenarios effectively. Drawing from empirical studies, landmark legal cases, and real-world examples, it examines how shifting norms in training, documentation, and interprofessional dynamics influence patient safety and physician liability. Ultimately, the goal is to equip surgeons with practical strategies to uphold the highest standards of care in moments of uncertainty, urgency, and shared responsibility.

Historical Context and Ethical Foundations

Historically, surgical culture emphasized boldness and autonomy. Trainees were expected to appear confident, even in uncertainty—a culture often encapsulated in the phrase, "sometimes wrong, but never in doubt." In contrast, modern surgical training encourages recognition of personal limits and collaborative care.

The Accreditation Council for Graduate Medical Education (ACGME) now explicitly includes the expectation that residents "recognize their limits and seek help when appropriate" among its core competencies. This principle resonates with the ancient Hippocratic Oath, which advises: "I will not use the knife, not even on sufferers from stone, but will withdraw in favor of such men as are engaged in this work." This line, while not directly referencing IOCs, has been interpreted to support the ethical duty of deferring to those with more expertise when appropriate.

Despite this long-standing ethical thread, major professional bodies such as the American College of Surgeons (ACS) offer

little explicit guidance on intraoperative consultation in their published codes of conduct.

Frequency and Scope of Intraoperative Consultations

Literature on IOCs within general surgery is sparse. One key study identified the most common reasons for consults as suspected iatrogenic injury, difficulty with dissection or exposure, and incidental findings. In that study, 61% of consultations required operative intervention, while 39% involved verbal guidance alone.

By contrast, the vascular surgery literature is richer. Approximately 0.3% of non-vascular operations require intraoperative vascular consultation—most frequently for revascularization, hemorrhage control, or complex dissection. Common referring services include trauma surgery, oncologic surgery, orthopedics, urology, and cardiothoracic surgery. A Level 1 trauma center reported a 529% increase in vascular consults between 2002 and 2017, despite no proportional increase in repairs performed, suggesting a trend toward reduced operative comfort or capability among general surgeons.

Declining Operative Exposure and Competency in Training

Multiple studies have documented a decline in resident surgical exposure and procedural confidence over the last few decades. Between 1989 and 2007, graduating chief residents saw a 50% decrease in vascular procedures. Similarly, between 1999 and 2013, there was a more than 50% drop in carotid endarterectomy, aortoiliac aneurysm repair, and lower extremity bypass procedures performed by residents. Trauma cases also declined dramatically: from 8.6 per graduating resident in the 1960s–70s to fewer than one by the 2010s.

A national survey found that only 7.7% of graduating surgical chiefs felt confident performing all ten American Board of Surgery (ABS) core procedures. While 90% felt confident with skin and soft tissue surgeries, 26% of fellowship program directors noted that their new fellows could not recognize tissue planes, and 66% believed they should not be left alone in the OR for more than 30 minutes.

Another analysis of the final six months of chief residency showed high competence in appendectomies (96%) and cholecystectomies, but only 65% in partial colectomies. For less common core procedures—e.g., splenectomy, thoracotomy, pyloromyotomy—competence dropped significantly, with fewer residents achieving "supervision only" status.

Routine Intraoperative Consultation as Quality Improvement: The German Study

An innovative quality improvement initiative was implemented at a single German hospital in 2005, involving systematic routine intraoperative consults. These were divided into:

- **Regular Consultations**: Predefined critical points in a procedure (e.g., before clipping structures during cholecystectomy) were reviewed by a more experienced surgeon.
- **Tactical Consultations**: Triggered by intraoperative complications, unexpected findings, or the need to deviate from standard approaches.

From January to June 2008, the team recorded 872 intraoperative consultations: 81% regular and 19% tactical. Only 8% of cases overall led to a change in the surgical

plan. However, 28% of tactical consultations resulted in minor changes and 35% in major changes. In contrast, fewer than 5% of regular consults led to changes, indicating that the highest utility of consultation was during unanticipated events.

These consultations were self-categorized by the consulting and operating surgeons using post-operative surveys, introducing potential bias. Nonetheless, the findings support the role of experienced second opinions in improving decision-making under uncertainty.

Ethical Principles in Intraoperative Contexts

Four core bioethical principles should guide intraoperative decision-making:

1. **Beneficence**: Acting in the patient's best interest.
2. **Non-maleficence**: Avoiding harm to the patient.
3. **Autonomy**: Respecting the patient's right to make informed decisions.
4. **Justice**: Ensuring fair treatment.

The principle of autonomy becomes severely limited intraoperatively due to the patient's incapacitation. Surgeons must therefore strike a balance between delaying an intervention—potentially risking harm—to preserve autonomy and proceeding to act without explicit consent to prevent further injury or morbidity.

Situations That Justify Immediate Intraoperative Action

There are three primary situations where immediate action is ethically justified:

1. **Surgical Emergencies**: Life-threatening conditions, such as a perforated aorta or massive hemorrhage, require immediate intervention. Delaying to regain patient input would likely be fatal or significantly increase morbidity.
2. **Avoidance of Additional Harm**: If aborting a procedure results in greater harm—such as deferring repair of a recognized bile duct injury—ethical analysis favors intraoperative repair, ideally by someone with appropriate expertise. Notably, one European city developed a specialized bile duct injury team with system-wide privileges, yielding superior outcomes through timely intraoperative intervention (Silva et al, 2008).
3. **High-Risk Re-operation Candidates**: Patients with significant comorbidities (e.g., severe CHF or COPD) may not tolerate a second anesthetic. In these cases, completing necessary but unplanned interventions during the original surgery may be ethically preferable.

Situations That Should Be Deferred to Postoperative Consent

Conversely, certain decisions are too consequential to make without direct patient involvement. These include interventions that:

- Result in **loss of reproductive capability**
- Impair **neurologic or cognitive function**
- Significantly affect **mobility or quality of life**

These decisions, particularly outside the context of a true emergency, often exceed the authority of even a designated surrogate and require specific informed consent from the patient whenever feasible.

Surrogate Decision-Makers: Value and Limitations

Although family members or surrogates are often present and familiar with the patient, they may not be ideal decision-makers in intraoperative crises. In one study, 14% of patients had designated healthcare proxies who differed from the individuals listed as emergency contacts or present at surgery. Moreover, a meta-analysis on end-of-life decision-making among terminal cancer patients found that surrogates correctly predicted patient wishes only two-thirds of the time.

These findings highlight a significant margin of error and emotional burden placed on surrogates, especially when decisions must be made rapidly. Unlike long-term incapacity cases where goals-of-care meetings are possible, intraoperative crises offer no time for prolonged ethical discussions.

Role of the Surgeon as Decision-Maker

In many cases, the surgeon is the most informed party and may be best positioned to act in the patient's interest. Some institutional consent forms provide the latitude to "perform all other indicated procedures" in response to unforeseen complications—implicitly endorsing the surgeon's discretion when urgent decisions must be made. However, this is not universal. For example, the Detroit Medical Center (DMC) informed consent form does not include such a clause.

The surgeon may also involve the surrogate in the conversation without relinquishing decision-making authority—acknowledging patient autonomy while retaining responsibility. This hybrid model allows the surgeon to uphold ethical practice while minimizing harm and respecting family engagement.

Framework for Intraoperative Ethical Decision-Making

A structured framework can guide intraoperative decisions in uncertain situations. The following four questions—adapted from the literature—are particularly useful:

1. **Is this an emergency?**
   If immediate action is needed to prevent catastrophic harm (e.g., vascular injury, bile duct disruption), autonomy must yield to beneficence and non-maleficence.
2. **Would additional information be gained by awakening the patient?**
   In cases of unexpected cancer findings, further imaging and staging may be beneficial before proceeding. In contrast, with incidental findings like a reducible hernia, consent is the only missing element, and minor repairs may proceed.
3. **Does the primary surgeon understand the patient's values and preferences?**
   A prior conversation about "doing everything to cure me" provides moral and practical justification for more extensive procedures. In contrast, unknown values in a trauma case warrant deferring major interventions if possible.
4. **Is the decision so life-altering that it must be deferred for specific consent?**
   Interventions affecting reproductive ability, cognition, or mobility typically require explicit postoperative consent unless emergent.

This framework respects the complexities of real-time decision-making while honoring patient values and ethical standards.

Consultant-Patient Relationship: When Does Duty Arise?

A foundational legal question is whether a duty of care exists between the consulting surgeon and the patient. In general, a physician-patient relationship—and hence a legal duty—does not automatically arise simply because a surgeon is called into the operating room. According to legal precedent, a consulting surgeon typically assumes legal responsibility when they actively participate in the care of the patient, such as by scrubbing into the procedure or submitting a bill.

The courts have not been consistent in interpreting whether observing or offering verbal advice constitutes a formal physician-patient relationship. In some cases, informal intraoperative involvement has been judged sufficient to establish duty; in others, not. The determination often depends on the extent of involvement, documentation, and whether the consultant is acting on behalf of the primary surgeon or the patient directly.

Illustrative Case: Schwannoma Mistaken for Lipoma

A particularly instructive case published by a legal firm involved a 40-year-old male undergoing excision of a presumed lipoma in the upper extremity. The general surgeon encountered fibrous tissue and called an orthopedic surgeon for intraoperative consultation. The orthopedic surgeon did not scrub but visually assessed the area and advised the tissue could be divided. It was later revealed that the structure was the ulnar nerve and the mass was a schwannoma. The patient suffered permanent nerve damage and a claw hand deformity, rendering him unable to work.

This case raises significant legal questions:

- Did the orthopedic surgeon, by offering advice without scrubbing in, assume a duty of care?
- Was the primary surgeon solely responsible?
- Is liability shared?

The answers hinge on how the consultant's involvement is interpreted in light of legal doctrines and hospital policies.

Selecting an Intraoperative Consultant: Legal Precedent

In *Rice v. United States* (1980), a federal court held that a referring military physician was partially liable for sending a patient to a civilian surgeon unqualified in vascular surgery. The surgeon's incompetence led to serious injury. The court ruled that referring a patient to an unskilled or unqualified consultant may create liability for the referring physician—especially if the selection was negligent.

Although Rice involved an elective referral, the principle extends to intraoperative consults. When patients are under anesthesia and cannot consent to or reject a particular consultant, the primary surgeon remains responsible for ensuring the consultant is appropriately skilled. This aligns with the general legal standard that the selection of a consultant must reflect what a reasonably prudent surgeon would do in similar circumstances.

Maintaining the Standard of Care

The overarching legal guidance for when to consult intraoperatively is to follow the standard of care. This standard is defined as the behavior expected of an average physician

exercising reasonable prudence in similar clinical circumstances.

In *Burke v. Meredith* (1976), a patient with gunshot wounds to the abdomen underwent a colon repair by a general surgeon. After complications arose, a specialist was consulted. The patient later sued, alleging the specialist should have been involved from the outset. The court ruled for the general surgeon, stating that if a practitioner exercises the care and skill of others similarly situated, they are not liable for failing to consult unless the circumstances clearly indicate the need.

This ruling reinforces that surgeons are not expected to consult in every uncertain case—but they are expected to recognize when a reasonable peer would.

Vicarious Liability and Surgeon Hierarchies

The concept of **vicarious liability**, often summarized as respondeat superior ("let the master answer"), can apply if one party is responsible for the negligence of another under their supervision. In the operating room, surgeons are generally considered equals unless a formal employer-employee relationship exists.

Because intraoperative consultants are not typically employees of the primary surgeon, vicarious liability rarely applies. However, if a consultant delegates tasks to a less experienced assistant or if the primary surgeon has direct supervisory authority, liability may be shared or reassigned depending on the control exerted.

Similarly, incorrect surgical counts or retained surgical instruments may result in liability for the attending surgeon, who is deemed to be in overall charge of the surgical environment.

Joint Venture Doctrine

When two surgeons jointly perform a procedure, courts may consider the relationship a joint venture, implying shared goals, risks, and liability. In such cases, both surgeons owe equal duty to the patient and are jointly liable for negligence unless one formally withdraws or is dismissed from care.

The joint venture doctrine is less likely to apply when separate procedures are performed simultaneously by different specialists. For example, a general surgeon repairing a hernia while a plastic surgeon revises a scar may be considered as operating in parallel, rather than collaboratively, thus limiting shared liability.

Can the Primary Surgeon Transfer Responsibility?

Some primary surgeons may attempt to deflect liability by handing over care to a consulting surgeon. However, this is difficult to justify legally during surgery under general anesthesia, when the patient cannot consent to a change in surgeon. Even if the consultant assumes technical responsibility, the primary surgeon usually retains legal responsibility due to the preexisting physician-patient relationship and the inability to formally transfer care intraoperatively.

Preoperative Consultation: Autonomy and Liability Protection

One key risk reduction strategy is to anticipate possible intraoperative complexities and obtain preoperative consultation when appropriate. From a legal standpoint, involving a consultant before surgery helps clarify roles and allows the patient to consent to the consultant's participation—potentially limiting the primary surgeon's liability under joint venture or vicarious liability theories1.

However, the ethical rationale for preoperative consultation is even more compelling. It ensures patient autonomy by allowing individuals to express preferences in advance, particularly in complex or high-risk procedures. Clear documentation of this process reinforces informed consent and may later serve as legal protection.

Documentation: Clarity, Neutrality, and Detail

Accurate and objective documentation is essential. Medical records often serve as the primary evidence in malpractice litigation—sometimes years after the event. Surgeons must:

- Avoid conjecture or editorializing.
- State only facts personally observed.
- Omit commentary on another surgeon's skills or decisions.
- Record specific steps taken and any decisions made.

Incomplete, ambiguous, or emotionally charged records increase liability risk. According to medico-legal literature, consulting surgeons should particularly emphasize documenting the timeline of their involvement to avoid responsibility for pre-consultation events.

Communication: Disclosure and Relationship-Building

Ethical duty requires surgeons to disclose adverse events. Postoperatively, the consulting surgeon—having entered into a formal physician-patient relationship—should be available to speak with the patient and their family. Notably, legal experts emphasize that patients are more likely to sue unfamiliar names on a bill than physicians who have introduced themselves personally.

Engaging with patients and families improves trust and satisfaction, and may prevent misunderstandings or grievances that escalate into lawsuits.

Framework for Effective Intraoperative Consultation

A structured approach can help new and seasoned surgeons alike manage intraoperative consultations effectively. Kumar et al. (2020) from Thomas Jefferson University proposed an 11-step framework, which we adapt here for clarity:

A. Initial Encounter

1. **Stay Calm and Be Supportive**
   Recognize that calling for help reflects humility and respect. Approach with professionalism.
2. **Clarify the Question and Urgency**
   Determine whether immediate action is needed and the degree of involvement expected—verbal advice, technical help, or full procedural assistance.
3. **Independently Verify Key Information**
   Review imaging, labs, notes, and patient stability. Speak with anesthesia and assess hemodynamics.

B. If Scrubbing In

4. **Reassess the Surgical Field**
   Independently verify anatomy and the primary surgeon's identifications before proceeding.
5. **Formulate a Plan Collaboratively**
   Aim for agreement, but recognize the primary surgeon retains ultimate authority unless formally transferring care is possible.
6. **Execute the Agreed Plan**
   Communicate clearly; define leadership roles; avoid ego-driven conflicts.

7. **Confirm Task Completion**
   Before exiting, verify no further help is needed.
8. **Develop Contingency Plans**
   Offer backup strategies or availability in case of new issues.

C. Postoperative Responsibilities

9. **Formulate a Shared Postoperative Plan**
   Especially if reconstruction or repairs were involved, the consulting surgeon's input should be honored, while the primary retains ultimate responsibility.
10. **Communicate with Family**
    Ideally, surgeons speak together with the patient or family. Consultants should introduce themselves to prevent confusion or resentment.
11. **Debrief Later**
    Use the experience as a teaching moment. Avoid intraoperative criticism, which can destabilize the team or humiliate the primary surgeon. A follow-up debrief in 24–48 hours allows for reflection and learning.

Summary and Conclusion

Intraoperative consultations are increasingly common yet inconsistently understood and practiced. They serve as critical inflection points where surgical judgment, ethics, and legal accountability converge. The decline in operative exposure during residency, coupled with the growing complexity of procedures and comorbidities, underscores the need for thoughtful and collaborative intraoperative decision-making.

This paper has outlined the frequency, causes, and risks associated with IOCs, while emphasizing the ethical principles of beneficence, non-maleficence, autonomy, and justice. Through real-world examples and case law—including the Schwannoma case and Rice v. United States—it becomes clear that the legal implications of IOCs hinge on nuanced interpretations of duty, consent, and shared responsibility.

Surgeons must be aware that informal advice can carry legal liability and that the act of selecting a consultant entails a duty to choose appropriately skilled colleagues. Institutions can reduce liability and improve patient outcomes by fostering a culture of routine, structured intraoperative consultation, as seen in the German quality improvement model.

To operationalize these insights, the paper proposes a decision-making framework and an 11-step intraoperative consultation model adapted from Kumar et al. Together, these tools promote clinical clarity, ethical rigor, and legal defensibility. As surgical culture continues to evolve, the integration of structured IOCs into daily practice may not only mitigate risk but also elevate the standard of patient care across specialties.

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