

Design and Impact of an Intraoperative Pathway: A New Operating Room Model for Team-Based Practice

Background

Team-based model for delivery of care has been a critical concept at our institution for improving efficiency and safety. Despite these measures, difficulties continue to occur during lengthy procedures in the operating room. Surgeon fatigue can translate into tension and stress, leading to communication failures in the operating room. Non-standardized practices that are highly variable can create professional role ambiguity and contribute to waste and inefficiency.

The Problem

In 2004, we created a subspecialized program for autologous breast reconstruction after mastectomy. The primary procedure performed is a microsurgical free tissue transfer, namely the deep inferior epigastric perforator (DIEP) flap. After the first 200 flaps were performed, we assessed various outcome parameters. While our endpoints of flap success and complication rates were similar to the published literature, operating times had reached a disappointing plateau of over 8 hours for a unilateral reconstruction and 12 hours for a bilateral reconstruction.

Goal

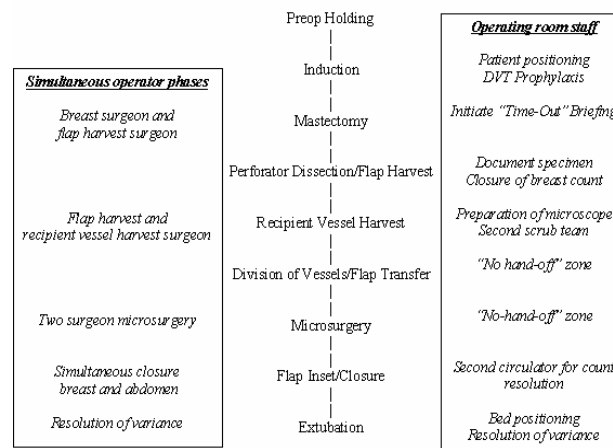
To improve communication and efficiency, we organized a multidisciplinary team to create an intraoperative pathway.

The Team

- Plastic Surgeons and Breast Surgeons
- Anesthesiologists
- Circulating Nurses and Surgical Technicians
- Department of Surgery, Office of Quality and Safety
- Department of Clinical Resource Management
- Department of Decision Support

The Interventions

- The operation was separated into 9 stages, and activities were described for each team member at each stage.
- Equipment use and time checkpoints were mapped on the pathway.
- Inter-phase transition briefings were guided by checklists and open communication.
- Anesthesia component was further standardized for delivery of medications and antibiotics.
- Variances from the pathway were discussed at the end of each case.



The Results

Operative times have decreased significantly after pathway implementation in both the unilateral (15.5%) and bilateral groups (16.4%). Operating room costs showed a significant decrease in the unilateral group (15.6%). Prophylactic antibiotic administration and re-dosing showed improvements after initiation of pathway. Staff surveys showed significant improvements in interdisciplinary communication, transition guidelines, and enhanced efficiency through standardization.

Lessons Learned

Implementation of an intraoperative pathway decreased both operating room time and cost in DIEP flap breast reconstruction. Complex, multi-team procedures can achieve similar benefits from standardization and intraoperative pathway development.

Next Steps

The pathway has allowed us the ability to recognize areas of continued process improvement. As our intraoperative pathway evolves, we expect to show further improvements in efficiency and quality of care. Ongoing dialog and communication have created an open environment where input is encouraged from all team members. The Department of Surgery is extending this model to other complex operations and will study impact in a variety of surgical procedures.

