

Implementation of a Multimodal Analgesia Protocol in Head and Neck

Free Tissue Reconstruction to Reduce Opioid Usage

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IMPORTANCE

- Enhanced recovery after surgery (ERAS) protocols were established to standardize patient management and optimize outcomes.
- With the current opioid crisis in the United States, opioid-sparing protocols have been suggested in complex surgical patients, including head and neck (H&N) free tissue reconstructive surgery, as a countermeasure for prescription-related opioid dependency and mortality.
- These protocols, which consist of multiple interventions and components, may face barriers to consistent and complete implementation by multidisciplinary teams.

OBJECTIVE

- Our aim is to identify barriers and facilitators to complete implementation of a multimodal analgesia protocol (MAP) in H&N free tissue reconstructive surgical patients.

DESIGN, SETTING, AND PARTICIPANTS

- Patients undergoing H&N free tissue reconstruction were part of the pilot cohort for the new multimodal analgesia protocols (MAPs).
- There were two phases to our implementation evaluation including Phase 1: MAP informal implementation and Phase 2: MAP implementation applying feedback from care team stakeholders.
- Formal implementation, Phase 2, began in December 2019.

INTERVENTIONS

- The literature was reviewed for implementation models and strategies for inpatient and surgical analgesia protocols, and there was overwhelming evidence that ERAS recommendations can be difficult to adopt, with overall low compliance.
- Early-on acceptability and feasibility are necessary for implementation; thus planning focus groups were held to discuss protocol guidelines with key stakeholders from Anesthesiology and Otolaryngology departments.
- The implementation Otolaryngology team facilitated pre-implementation informal focus groups which influenced the development of the MAPs.

MAIN OUTCOMES AND MEASURES

- The primary endpoints are measures of implementation: overall acceptability, adoption, penetration, and sustainability. Secondary endpoints include morphine milligram equivalents (MMEs) and compliance rate.

RESULTS

- Key barriers and facilitators were noted during our implementation of a MAP (Table 1).
- Barriers were identified by key stakeholders including the complexity of multiple settings, of the need for standardized analgesia order sets, intentional identification and engagement of nursing leadership able to disseminate information to all relevant nursing staff, and universal buy-in from all stakeholders.
- Facilitators were also identified including formal multidisciplinary education meetings and open communication. Additionally, individual team lead champions are vital for more consistent implementation of MAPs. Constant evaluation and feedback for stakeholders also aided with successful implementation.

Facilitators	Barriers
Multidisciplinary education meetings	Complexity of multiple settings
Open communication	Standardized order sets
Individual team lead champions	Dissemination of information from nursing leadership
Patient compliance	Buy-in from all stakeholders

Table 1. Facilitators and barriers noted during implementation of a multimodal analgesia protocol (MAP).

- Phase 1 resulted in a high variability of compliance (63.4%) and MMEs (median: 109.5 mg, IQR: 45-159.5), demonstrating the need for a formal implementation process (Table 2).

- Overall acceptability, departmental adoption, penetration, and sustainability were observed after MAP implementation with measured increased compliance (85.1%) and decreased MME variability (median: 70 mg, IQR:7.5-111). The result has been a clinically significant reduction (44.0%) of opioid usage in H&N free tissue reconstruction patients following the implementation process.

	Median morphine miliequivalents (MMEs)	Compliance (Medication administration)
Phase 1 (Informal implementation)	109.5	63.4%
Phase 2 (MAP implementation)	70	85.1%

Table 2. Phase 1 and 2 comparisons of median morphine miliquivalents (MMEs) and compliance.

CONCLUSION AND RELEVANCE

- Implementation of evidence-based care into practice requires complex collaboration and coordination with a multidisciplinary team that presents unique facilitators and barriers which need to be addressed for success.
- Identification of barriers and facilitators through a formal plan and evaluation allowed for a consistent implementation of a MAP.
- This demonstrated an increase in compliance by >20% as well as a 44% decrease in MMEs, which, together, may contribute to a reduction in opioid prescriptions and their related dependencies.

REFERENCES

Brown D, Khaja A. Nursing Perspectives on Enhanced Recovery After Surgery. *The Surgical clinics of North America*. 2018;98(6):1211-1221. Dort JC, Farwell DG, Findlay M, et al. Optimal Perioperative Care in Major Head and Neck Cancer Surgery With Free Flap Reconstruction: A Consensus Review and Recommendations From the Enhanced Recovery After Surgery Society. *JAMA otolaryngology--head & neck surgery*. 2017;143(3):292-303. Du E, Farzal Z, Stephenson E, et al. Multimodal Analgesia Protocol after Head and Neck Surgery: Effect on Opioid Use and Pain Control. *Otolaryngology--head and neck surgery: official journal of American Academy of Otolaryngology-Head and Neck Surgery*. 2019;161(3):424-430. Hedderson M, Lee D, Hunt E, et al. Enhanced Recovery After Surgery to Change Process Measures and Reduce Opioid Use After Cesarean Delivery: A Quality Improvement Initiative. *Obstetrics and gynecology*. 2019;134(3):511-519. Joshi GP, Kehlet H. Postoperative pain management in the era of ERAS: An overview. *Best practice & research Clinical anaesthesiology*. 2019;33(3):259-267. Kahokehr A, Sammour T, Zargar-Shostari K, Thompson L, Hill AG. Implementation of ERAS and how to overcome the barriers. *International journal of surgery (London, England)*. 2009;7(1):16-19. Maessen J, Dejong CH, Hausel J, et al. A protocol is not enough to implement an enhanced recovery programme for colorectal resection. *The British journal of surgery*. 2007;94(2):224-231. Martin D, Roulin D, Grass F, et al. A multicentre qualitative study assessing implementation of an Enhanced Recovery After Surgery program. *Clinical nutrition (Edinburgh, Scotland)*. 2018;37(6 Pt A):2172-2177. Pearsall EA, McLeod RS. Enhanced Recovery After Surgery: Implementation Strategies, Barriers and Facilitators. *The Surgical clinics of North America*. 2018;98(6):1201-1210. Royer MC, Royer AK. Otolaryngology Consult Carts: Maximizing Patient Care, Surgeon Efficiency, and Cost Containment. *The Annals of otology, rhinology, and laryngology*. 2015;124(11):911-914.9. Smith TW, Jr., Wang X, Singer MA, Godellas CV, Vaince FT. Enhanced recovery after surgery: A clinical review of implementation across multiple surgical subspecialties. *American journal of surgery*. 2019. Stone AB, Yuan CT, Rosen MA, et al. Barriers to and Facilitators of Implementing Enhanced Recovery Pathways Using an Implementation Framework: A Systematic Review. *JAMA surgery*. 2018;153(3):270-279. Zoog E, Simon R, Stanley JD, et al. 'Enhanced Recovery' Protocol Compliance Influences Length of Stay: Resolving Barriers to Implementation. *The American surgeon*. 2018;84(6):801-807. <https://erassociety.org>

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