

Assessing the Financial and Operational Impacts of Transitioning Endoscopic Sedation to Monitored Anesthesia Care at Hillsboro Medical Center

Hillsboro Medical Center (HMC), a community hospital serving Oregon's western Washington County, engaged a team of Oregon Health & Science University (OHSU) healthcare administration graduate students to assess its endoscopy center operations. HMC aimed to understand the financial and operational impacts of shifting all endoscopy procedures to a fully monitored anesthesia care (MAC) sedation model. The scope of the team's evaluation included comparing current sedation practices with that of local and regional competitors, analyzing the financial and operational impacts of shifting to a fully MAC sedation model, and exploring non-sedation related opportunities for operational improvements. The OHSU team interviewed HMC employees and local endoscopy centers, conducted an extensive literature review, and performed an introductory financial and operational data analysis.

Local and National Endoscopy Sedation Practices

The HMC endoscopy center primarily utilizes a moderate sedation model, with MAC sedation used only when medically necessary. Moderate sedation uses a combination of a benzodiazepine and opioid administered by a registered nurse (RN) with endoscopist oversight. In contrast, MAC sedation most commonly uses propofol as the sedating agent and is administered by an anesthesia provider. In the Portland metropolitan area, moderate sedation was found to be the most commonly used sedation model at hospital-based endoscopy centers. Two local facilities are transitioning from fully MAC sedation models to moderate sedation use due to significant and widespread anesthesia provider shortages. A review of the literature indicated that moderate sedation was the most commonly used sedation method in the United States (US) through the 2000s; however, MAC sedation utilization increased consistently, and moderate sedation only narrowly remained the most commonly used protocol by the early 2010s (Adams et al., 2017; Cohen et al., 2006; Khiani et al., 2012; Liu et al., 2012; Predmore et al., 2017). Throughout this period, the Western region of the US had consistently lower utilization rates of MAC sedation than all other US regions (Cohen et al., 2006; Liu et al., 2012; Predmore et al., 2017). Furthermore, moderate sedation is nationally accepted as the standard of care for low-risk gastrointestinal (GI) endoscopy procedures, while the utilization of MAC sedation for routine endoscopy procedures remains widely debated (Cohen et al., 2007; Dossa et al., 2021; Early et al., 2018; Heneghan et al., 2009; Vargo et al., 2012).

Operational and Financial Impacts of a MAC Sedation Model

THROUGHPUT

One of HMC's primary goals was to evaluate the potential operational impacts of moving to a fully MAC sedation model for endoscopy procedures. This change in sedation practice would likely have minimal to no impact on patient throughput, as it was determined that allotted procedure times would remain the same. Therefore, the daily procedure totals would not change. Some stakeholders at HMC posed that MAC sedation might reduce the time it takes to sedate and recover patients. However, additional time tracking and further throughput analysis are necessary to confirm this theory.

STAKEHOLDER EXPERIENCE

Informational interviews revealed the impact a fully MAC sedation model would have on HMC key stakeholders, including patients, endoscopists, and RNs. HMC patient experience feedback from early 2023 found that patients were equally satisfied with MAC and moderate sedation. All HMC gastroenterologists shared that one of the primary benefits of MAC sedation is that it eliminates their need to oversee sedation and therefore enhances their ability to focus exclusively on the procedure. Endoscopy RNs shared that they value administering moderate sedation, contributing to an increase in job satisfaction. RNs also highlighted that if a fully MAC sedation model was to be implemented, they risk losing proficiency in moderate sedation administration, limiting HMC's option to return to a primary moderate sedation model.

FINANCIAL CONSIDERATIONS

An introductory financial analysis was completed to assess the impacts of transitioning sedation models. The anesthesia staffing model was found to be the most significant cost driver in moving to fully MAC sedation. Unlike moderate sedation, MAC sedation requires anesthesiology staff resources, though there are multiple different anesthesia staffing models to consider. The MAC anesthesia staffing model that HMC chooses would significantly impact the financial viability of this change. Additionally, recent trends in authorizations and reimbursements are likely to affect the financial viability of transitioning to a fully MAC sedation model. Some payers require low-risk endoscopy procedures to be performed at ambulatory surgery centers (ASCs) due to lower overall costs. It was also found that payers are more frequently requiring prior authorizations for endoscopy procedures using MAC sedation at hospital-based facilities. This trend is likely to result in higher rates of denials for MAC sedation at HMC, leading to cost absorption down the line.

NON-SEDATION RELATED OPERATIONAL IMPROVEMENTS

In addition to assessing the impact of shifting to a fully MAC sedation model, further areas for operational improvement were identified. These include strengthening the OHSU-HMC partnership to increase referral volumes, revising endoscopy order sets to eliminate the ordering of MAC sedation based on provider preference, and restructuring procedure templates to maximize capacity. Additionally, HMC should resume patient reminder calls to reduce late cancellation and no-show rates and introduce GI technicians in the procedure rooms to ensure RNs can work at the top of their licensure. These non-sedation related process improvements can greatly strengthen the operations of the HMC endoscopy center.

Conclusion

Ultimately, the team could not definitively conclude if a fully MAC sedation model would be financially or operationally favorable compared to HMC's current operations. A significant limitation of the team's review was the need for greater access to data necessary to complete a full pro-forma evaluation and a throughput analysis within the project timeline. HMC should complete these analyses before making a final decision on sedation models. Despite this limitation, the team found multiple additional areas for process improvement. This report outlines six recommendations for HMC to contemplate, ranging from policy revisions to staffing model changes. Even without a change in sedation models, the delineated recommendations have the potential to reduce costs and increase revenues for the HMC endoscopy center.

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