

CASE STUDY: Improving Peri-operative Safety for Patients with Undiagnosed Obstructive Sleep Apnea

Who:



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Overview:

Obstructive sleep apnea (OSA) is the most common sleep-related breathing disorder worldwide, affecting up to 936 million people. It is highly prevalent in China, the US, Brazil and India, yet remains grossly underdiagnosed. Because OSA increases morbidity and mortality, its presence in surgical patients poses significant risks – particularly as more procedures, such as total joint arthroplasty, shift to the outpatient setting.

Location:



The challenge:

At a midwestern community hospital in the US, many patients presenting for outpatient total joint surgery were not being screened or treated for OSA. This gap exposed them to a higher risk of airway, cardiovascular, and pulmonary complications post-operatively. The project team – comprising DNP nurse anaesthesiology students, nurse navigators and quality improvement leaders – recognised the need for an evidence-based protocol for early screening, detection, and referral.



Evidence-based approach:

International guidelines, including a JBI Best Practice Evidence (2021, updated 2023), recommend routine peri-operative screening for OSA using validated tools such as the STOP-Bang questionnaire, with appropriate referral for sleep study and continuation of CPAP therapy. Drawing on these recommendations and the JBI Evidence Implementation Framework, the team designed an evidence-based practice project to close the screening gap.



Implementation:

- **Baseline Audit:** 30 patients undergoing joint surgery between June–December 2020 were reviewed. Only 17% had a STOP-Bang assessment and most were scored incorrectly.
- **Education & Training:** Direct teaching sessions with sample patients and slide presentations improved staff familiarity with the STOP-Bang tool.
- **Workflow Integration:** Collaboration with IT specialists ensured the assessment was visible in the EMR surgical dashboard, with clinical decision support added.
- **Staff Engagement:** Educational in-services and leadership emails built buy-in among nursing and physician staff.
- **Referral Protocol:** Patients with at least moderate OSA were referred for polysomnography, instructed to obtain a CPAP if indicated, and to bring it on the day of surgery.
- **Patient Education:** A branded brochure explained OSA risk factors and the importance of sleep study completion.

Results:

A follow-up audit of 30 patients between July–December 2021 showed substantial improvements:

- STOP-Bang documentation increased from 17% to 57% (a 70.6% improvement).
- Accuracy of STOP-Bang scoring improved five-fold (from 3% to 17%).
- Five patients (20%) were referred for a sleep study, up from zero at baseline.

Although peri-operative CPAP compliance did not yet change (likely due to the compressed timeline), the project demonstrated clear gains in screening and referral practices.

Lessons learned:

- **Leadership Support Matters:** Regular updates and transparency helped overcome the limited authority of student project leads.
- **Early IT Engagement Is Crucial:** EMR changes can take months; start discussions early.
- **External Factors Influence Implementation:** COVID-19 diverted resources and increased outpatient surgery volumes, making OSA management even more critical.

Sustainability & next steps:

The project was presented at hospital Grand Rounds to raise administrator awareness and encourage system-wide adoption. Yearly education for surgical and nursing staff is planned to maintain compliance as evidence evolves and new staff join.

Conclusion:

Validated screening tools like STOP-Bang are vital for identifying surgical patients at risk of OSA and improving peri-operative safety. This project shows how an academic-clinical partnership can translate best evidence into practice, even in a busy community hospital. The model is replicable for other outpatient surgical populations to ensure safer transitions home.

Key Takeaways:

- Undiagnosed OSA poses a significant risk for outpatient surgical patients.
- Using a validated screening tool embedded in the EMR improves detection and referral.
- Interprofessional collaboration, leadership engagement, and targeted education drive successful implementation.
- Academic-clinical partnerships can produce timely, evidence-based practice improvements with real-world impact.



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