Procedural Oxygen Mask Use for Inpatient Bariatric Endoscopy: A Scoping Review

Makinlee Meadows, RN, BSN; Marion Millette, RN, BSN; Brittany Morgan, RN, BSN; Lauren Pegrim, RN, BSN; Collier Phillips, RN, BSN; Dr. Dwayne Accardo, DNP, MSN, CRNA, APRN, FAANA
Dr. Tracy McClinton, DNP, APRN, ACACNP - HGET-C, EBP-C
College of Nursing - The University of Tennessee Health Science Center - Memphis, TN

Background
Hypoxia is a severe adverse event that is often associated with endoscopy procedures. Bariatric patients are at higher risk for inadequate oxygenation. Use of the POM mask during endoscopy procedures is beneficial for bariatric patients. Supports adequate oxygenation during endoscopy, decreases hypoxic adverse events, and allows for adequate pre-oxygenation. Monitoring of patients’ expiratory carbon dioxide levels.

POM mask should be the Standard of Care for endoscopy procedures, especially with the bariatric population. The 10 reviewed articles reported that POM masks showed decreased hypoxic events in bariatric patients.

Methods
Study Design
Scoping review

Study Population
Inpatients undergoing endoscopic procedures aged 19-64 with a body mass index greater than 40

Study Duration
August 2022 to November 2023

Studies included
• Control trials with and without randomization
• Case control and cohort studies
• Systematic reviews
• Qualitative/descriptive studies

Considerations
The Procedural Oxygenation Mask became available in 2012 and has slowly been adopted as the standard of care in procedural areas nationwide. However, with its relative newness, there are limited studies related to the use of procedural oxygen masks in bariatric populations.

Databases Utilized
PubMed, EBSCO, Elsevier, and Medline

Keywords and Phrases
Hypoxia, Endoscopy, Airway, Oxygen Mask, Binasal Canula, Supplemental Oxygen, BMI, Obesity, Bariatric

Results
POM is more likely to decrease the incidence of hypoxic events in bariatric patients compared to a binausal cannula.

• Out of the 10 reviewed articles, no studies showed an increased risk of hypoxemia in those utilizing a POM.

Bi-nasal cannula has mixed results
• An equal number of studies showed that a bi-nasal cannula both increased and decreased the incidence of hypoxia during endoscopy.

Preoxygenation is one of the most important factors in preventing hypoxic events in the bariatric population.

• Preoxygenation significantly decreases the risk of terminating a procedure.

• Procedures without preoxygenation showed an increased incidence of hypoxia in bariatric patients.

Implications for Practice

Education and Training
• Anesthesia providers should stay updated on standards of care and best practices related to bariatric endoscopies.
• Participate in continuing education to ensure proper use of the procedural oxygen mask.

Proper Sizing, Fit, and Airway Assessment
• Verify that the procedural oxygen mask provides an adequate seal and prevents air leaks to optimize oxygen delivery.
• Ensure access to multiple sizes of masks to accommodate varying facial structures due to anatomical changes associated with morbid obesity.
• Conduct a thorough pre-procedural airway assessment, assess the patient’s weight, neck circumference, and any potential challenges associated with obesity.

Oxygenation and Monitoring
• Consider higher oxygen flow rates to account for increased oxygen consumption in obese individuals.
• Be vigilant for signs of respiratory distress, especially considering the potential for respiratory complications in individuals who are obese.
• Discuss pre-procedural assessments, potential airway challenges, and contingency plans for airway management in obese patients with all providers associated with patient’s care.

Equipment Accessibility
• Ensure necessary equipment: supplemental oxygen supplies, a variety of airway devices (oral airway, nasal airway, laryngeal mask airway, endotracheal tube), and oxygen masks are readily available prior to the start of an endoscopy in the procedural room.

References