

Perceived Erosion of Foundational Airway Management Skills in the Era of Video Laryngoscopy: A Cross-Sectional Survey of Anesthesiology Clinicians

Lawrence Chinn, MD¹; Dhvani Shihora, MD¹; Myriam Lin, BA²

1. Department of Anesthesia and Perioperative Care at Rutgers New Jersey Medical School, Newark, NJ, United States. 2. Rutgers New Jersey Medical School, Newark, NJ, United States.

Introduction

Video laryngoscopy (VL) has revolutionized airway management by improving glottic visualization and first-pass success rates. Yet, as VL becomes the default approach, concerns have emerged that foundational manual skills such as direct laryngoscopy with the Miller blade are being neglected. Similar trends have been observed in other procedural fields, where reliance on advanced technologies can lead to “deskilling” and loss of critical fallback abilities when technology fails.^{1,2} In anesthesiology, this raises an important question: are we preserving the manual competence required to manage an airway when the screen goes dark?

Purpose

This study aimed to explore how anesthesiology residents and attendings perceive the current state of foundational airway management training. Specifically, it examined their exposure to, confidence in, and use of the Miller blade, their beliefs about the importance of maintaining these skills, and whether they perceive a decline in teaching traditional techniques.

Methods

A cross-sectional survey was distributed via REDCap to anesthesiology residents and attending physicians at a single academic medical center (IRB# Pro2025001199). The survey collected information about respondents’ frequency of Miller blade use, confidence with the device, perceived importance of maintaining this skill, and attitudes toward the decline of traditional airway teaching. Attendings were additionally asked about the frequency with which they teach manual airway techniques. Descriptive statistics were calculated, and Spearman correlation coefficients were used to evaluate relationships between variables among residents. All analyses were performed using JMP® Pro Student Edition (SAS Institute Inc., Cary, NC).

Results

Twenty-three clinicians completed the survey, including twelve residents and eleven attendings. Residents reported infrequent use of the Miller blade (median 2.0/5) and low confidence (median 2.5/5) in performing direct laryngoscopy, despite rating its importance highly (median 4.0/5) and expressing concern that teaching of manual skills is declining (median 4.0/5). Confidence was strongly correlated with frequency of Miller blade use for direct laryngoscopy (Spearman’s $\rho = 0.77$, $p = 0.0031$) and moderately correlated with perceived importance ($\rho = 0.65$, $p = 0.02$). Attendings reported teaching traditional airway management skills only occasionally (median 2.0/3), and 46% agreed or strongly agreed that these skills remain essential and are at risk becoming a “lost art”.

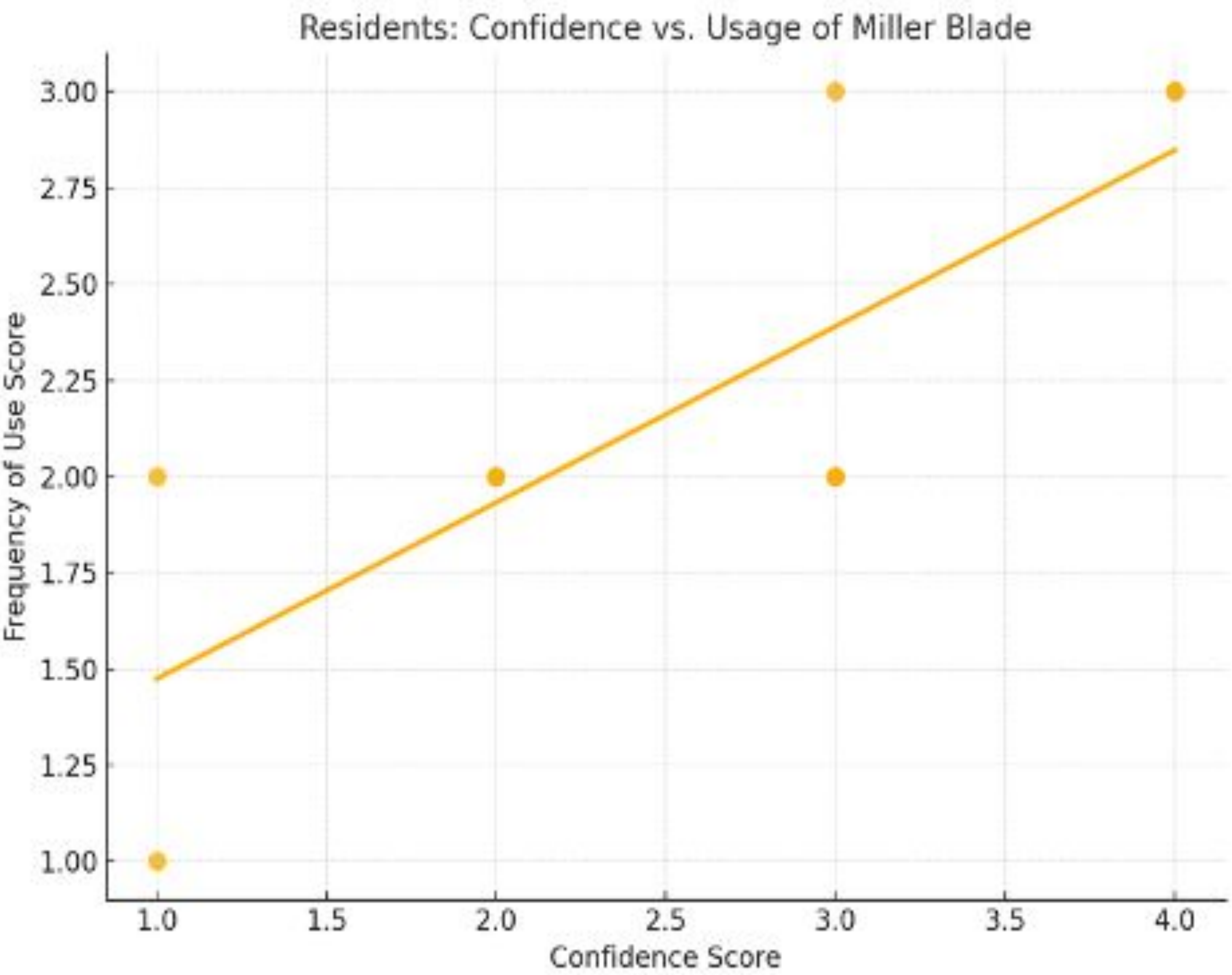


Figure 1. Residents' Confidence vs. Frequency of Miller Blade Use. Scatterplot with trend line illustrating the significant positive correlation between residents' confidence and frequency of Miller blade use.

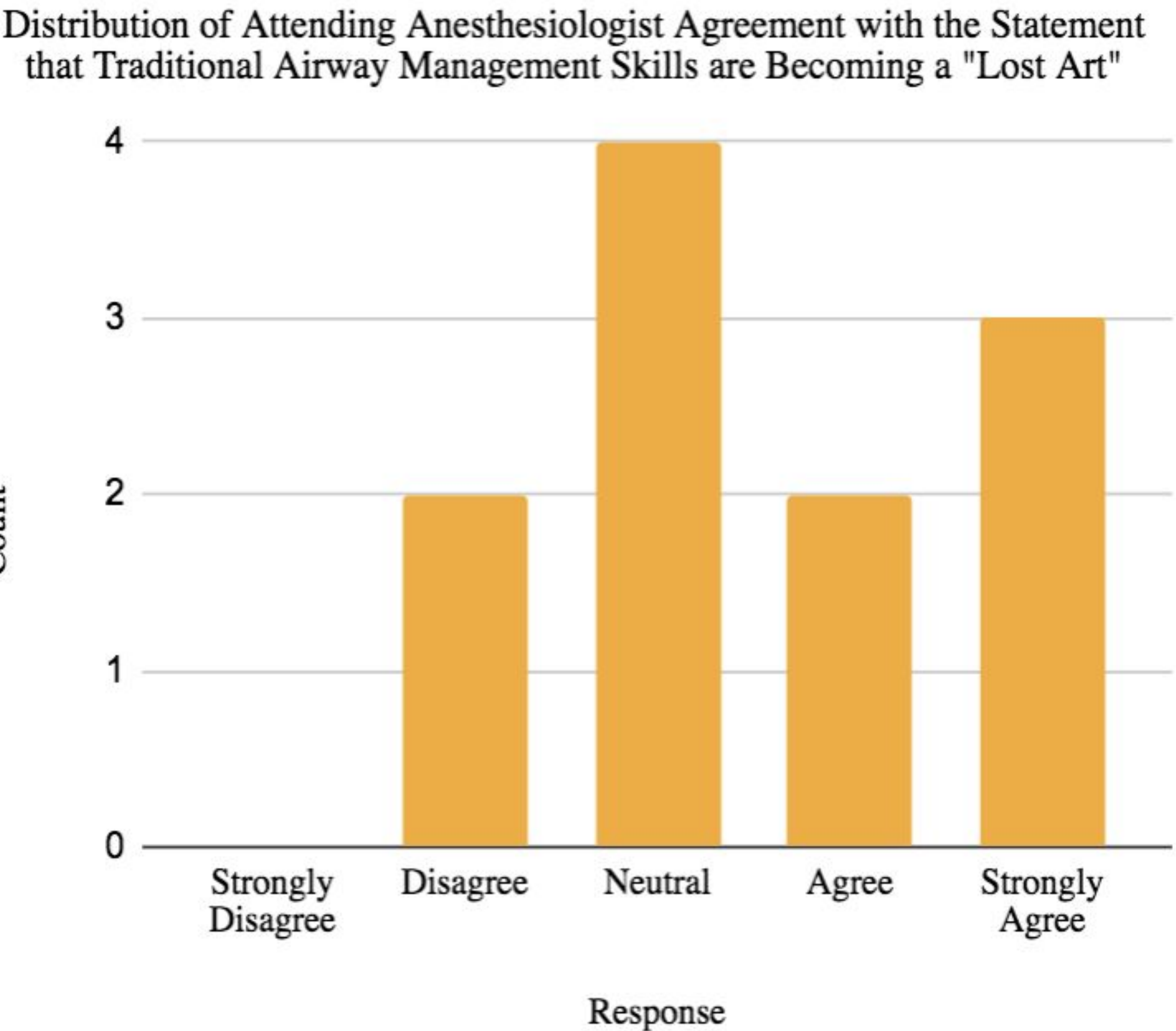


Figure 2. Attending agreement with traditional airway skills becoming a “lost art”. 46% agree or strongly agree with this statement.

Conclusions

While residents appreciate the importance of foundational skills, their limited exposure result in declining confidence. Attendings, though aware of this erosion, may underestimate how rarely trainees gain hands-on practice with the Miller blade. These findings echo trends across medical education in which convenience and efficiency can gradually undermine competence in fallback methods.³ Protecting these skills will require deliberate curricular strategies, including structured simulation, repeated practice, and faculty mentorship focused on manual techniques.

References

1. Lazar ho is afraid of black box algorithms? J Med Ethics. 2021;47(5):329–35.
2. DJ, Fingerhut A, Ferzli GS. One step forward, two steps back: Preserving surgical skill in the age of robotics. Annals of Laparoscopic and Endoscopic Surgery. 2025;10.
3. Sinagra E, Rossi F, Raimondo D. Use of artificial intelligence in endoscopic training: is deskilling a real fear? Gastroenterology. 2021;160(6):2212.