

# Double Gloving During Intubation to Decrease Contamination Rates

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## Abstract

The following question guided our project: Does using a double gloving technique during intubation, compared to using a single glove technique, decrease contamination rates to the anesthesia machine by anesthesia providers, therefore decreasing the risk of healthcare associated infections? An educational flyer was dispersed electronically and surveys were done to assess if a practice change was accomplished after the provider viewed the flyer.

## Introduction

During induction, intubation creates multiple opportunities for contamination of the anesthesia workspace. It is a common practice for providers at a large Central Florida hospital to wear a single pair of disposable gloves during induction and come into contact with the anesthesia machine afterwards. Bacterial transmission within this workspace has been linked to postoperative infections in up to 16% of surgical patients, which can lead to long-term complications (Loftus et al., 2015). Our project advocates for double gloving during intubation to reduce contamination, guided by the PICO question: Does using a double gloving technique (I) during intubation, compared to using a single glove technique (C), decrease contamination rates to the anesthesia machine (O) by anesthesia providers (P), therefore decreasing the risk of healthcare-associated infections. We will measure the number of providers who adopt this practice after education.

## Background

Healthcare-associated infections affect approximately 1 in 31 hospitalized patients and contribute to morbidity, mortality, and financial burden in the United States (CDC, 2024; Stone, 2009). The anesthesia workspace is a reservoir for pathogens, with organisms frequently contaminating equipment (Baillie et al., 2007; Maslyk et al., 2002; Loftus et al., 2008). Such contamination has been linked to intravenous tubing colonization and downstream infections (Loftus et al., 2008). Given this risk, double gloving during induction represents a promising intervention to improve patient outcomes.

## Methods

An educational electronic flyer was distributed to anesthesia staff to educate them about the benefits of double gloving. Anesthesia providers were instructed to complete pre-survey assessing their current gloving technique during intubation. After reading the educational flyer, the anesthesia providers were instructed to take a post educational survey. This self-reported practice change survey assessed whether the anesthesia providers had changed their practice to include double gloving after receiving the education. A survey system called Qualtrics was used to collect data.

Participants

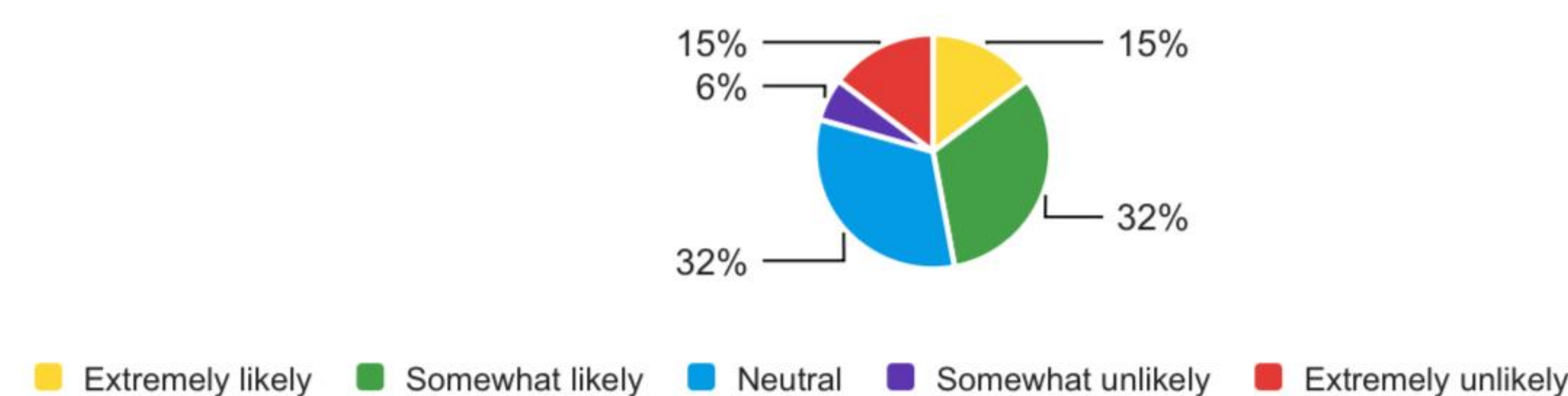


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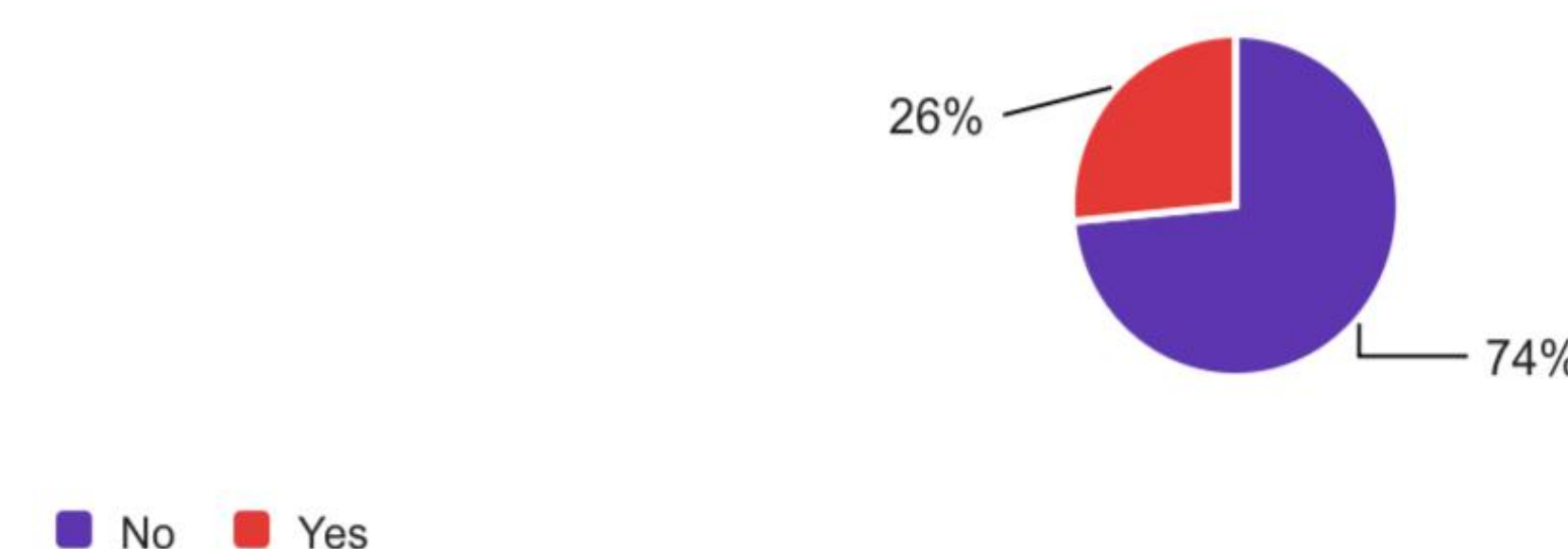
## Results

Data collected from Qualtrics revealed that 34 anesthesia providers responded to the pre and post educational survey. Fifteen percent of providers stated that they were extremely likely to change their practice after reading the educational flyer. Thirty-two percent stated they were somewhat likely to change their practice. 74% of anesthesia providers believed that double gloving would not cause an increase to their workload.

Q1 - How likely are you to change your practice based on the information provided on the flyer?



Q2 - Do you feel like adding this step would increase your workload?



## Discussion

These findings suggest that provider education remains a powerful driver of practice change, even when the intervention is simple and low-cost. The positive shift in willingness to adopt double gloving indicates that anesthesia professionals are receptive to infection-prevention strategies when they are practical and unobtrusive to workflow. Importantly, most providers did not perceive double gloving as adding burden, supporting its feasibility in the fast-paced operating room environment. While both double gloving and single-glove removal are effective at reducing contamination, double gloving may offer a more streamlined approach by minimizing workflow interruptions.

## Conclusions

Anesthesia professionals are open to adopting changes when presented with clear benefits and minimal barriers. The project highlighted the importance of measuring both clinical outcomes and workflow considerations. For infection prevention practices to be successfully sustained, they must be practical for the fast-paced operating room environment. Future comparative research should explore efficiency, provider satisfaction, and contamination outcomes to guide evidence-based practice adoption. With steady effort, this project shows potential for continued implementation and future expansion.

## References

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