Adoption of Double Gloving during Induction to Reduce Anesthesia Workstation Cross-Contamination

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Problem Statement

Nature of Problem: underutilization of double gloving during routine induction was consistently observed among the majority of anesthesia providers at the organization

Problem Significance: anesthesia-related pathogen transmission resulting from contamination among provider's hands and anesthesia workstation is a root cause of

- increased 30-day mortality
- increased healthcare costs ~ average $20,842 per stay
- longer hospital stays by nearly 10 days

Methods

Setting & Population: inner-city academic hospital on the east coast, composed of 144-inpatient beds and 8 operating rooms, all surgical patients undergoing a general anesthetic

Intervention: anesthesia discipline donning a second pair of gloves at induction start and doffing the outer layer of gloves after placement of an artificial airway, prior to touching the anesthesia workstation

Data Collection: observation of baseline data and 15 weeks of implementation data collected via:

- Staff Education Audit Tool
- Double Gloving Audit Tool
- Anesthesia Tech Weekly Supplies Audit Tool

Implementation strategies: education, visual reminders, badge attachments, regular collaboration with stakeholders, use of change champions, data collection and analysis

Conclusion

Usefulness & Contribution: anesthesia providers have a significant impact on reducing the transmission of nosocomial infections

- Implementing double gloving during induction is an evidence-based strategy that has been shown to significantly reduce anesthesia workstation cross-contamination and control the spread of pathogens

Sustainability & Spread:

- Continue to track compliance and share data with team surrounding the practice change
- Recruit change champions to help sustain the practice change
- Integration of the practice change should remain a part of the clinical workflow
- Integrate the practice change in new hire onboarding education

Implications for Practice & Future Steps: double gloving should be adopted into routine induction to promote a cleaner anesthesia workstation and a reduction in nosocomial infection potential

Purpose of Project

To improve the utilization of double gloving during induction among anesthesia providers and directly benefit system performance and patient outcomes at the organization

Results

Run Chart demonstrating Anesthesia Provider Double Gloving Compliance

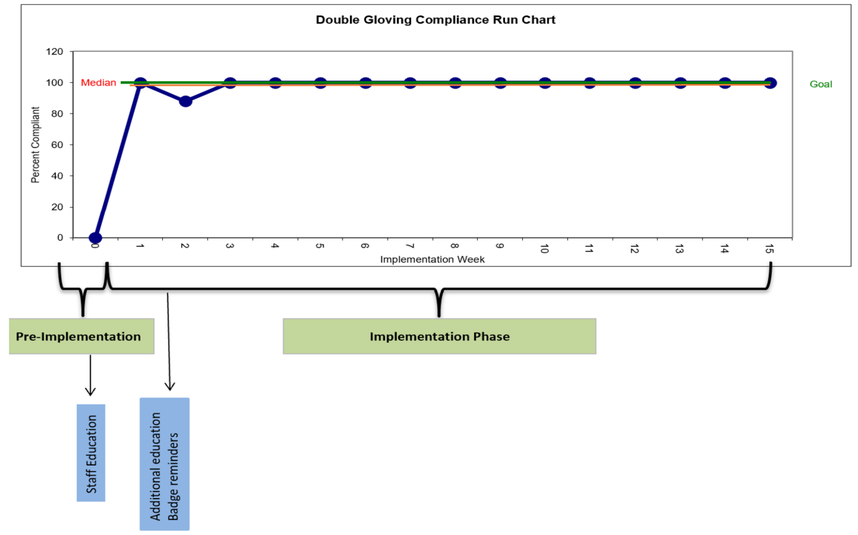


Chart demonstrates implementation phase of project over 15 weeks after staff education provided pre-implementation

Number of eligible participants to implement the practice change consisted of 16 anesthesia providers

Implementation week two represented a negative deflection indicating a need to address the cause

Modifications to intervention strategies were taken consisting of distributing additional education and badge reminders to facilitate compliance

The process goal by the end of the implementation phase demonstrated 100% compliance with double gloving among anesthesia providers

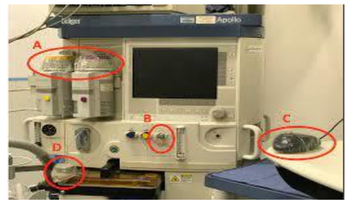
Specific Goals

Process Goal

- By December 10, 2023, 100% of anesthesia providers will incorporate double gloving technique during induction of general anesthesia

Outcome Goal

- Anticipated to promote positive outcomes for surgical patients as a result of controlling contamination of the anesthesia workstation based on preexisting evidence regarding benefits of double gloving during induction



Discussion

- Overall, anesthesia providers at the organization were amenable to the incorporation of double gloving during induction
  - **Focused education with evidence, along with alternative means of ensuring distribution of education was key to change**
  - **Support from change champions helped to reinforce the practice change through education**
- Similar to existing literature, this quality improvement project demonstrates that double gloving among anesthesia providers during induction can mitigate cross-contamination among the anesthesia workstation and improve patient outcomes
- **Limitations** included:
  - Changes to key stakeholders during project
  - Limited participation to initial pre-implementation education session

References

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