Implementation of a Double-Glove Protocol in Anesthesia to Reduce Surgical Infections

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BACKGROUND

- SSIs are the costliest HAI type of infection, often resulting in costs as high as $3.3 billion annually
- SSIs have many negative consequences including an average increased length of stay of 11.2 days, unplanned readmissions, additional treatments and costs, and increased mortality.
- With the use of appropriate interventions, the CDC estimates that 50% of SSIs are preventable.
- Literature shows that ORs have developed protocols to reduce SSIs, however the anesthesia providers are often overlooked.
- The anesthesia provider typically has a low rate of hand-hygiene compliance causing contamination in the anesthesia workspace which places the patient at risk for infection.
- Current literature shows that a major prevention strategy to decrease contamination in the anesthesia workspace is the use of a double-glove technique during the induction of anesthesia.

PURPOSE

- Project Problem
  - The project site has been experiencing an increase in SSI rates, even with new OR protocols set in place. The anesthesia providers must make changes to assist with reducing SSI rates at the practice site.
- Purpose Statement
  - The purpose of this project will be to develop and implement a double-glove protocol which will be used by anesthesia providers at the practice site.
- Project Aim
  - The overall aim of this DNP project will be to determine if there is a decrease in infection rates in the OR at the practice site.
  - The expectation is that this intervention would decrease future SSI rates at the practice site leading to an improvement in patient care, reduction in unnecessary hospital costs, and an improvement in CMS reimbursement and compliance with the quality indicator.

Table 4

Independent Samples Test Results

Independent Samples Test											
		Levene's Test for Equality of Variances		t-test for Equality of Means							
										95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference		Lower	Upper
SSI	Equal variances assumed	3.091	.079	.876	398	.382	.02000	.02283		-.02489	.06489
	Equal variances not assumed			.876	386.620	.382	.02000	.02283		-.02489	.06489

IMPLEMENTATION

- **Implementation:** November 18, 2020 after a meeting was held to educate anesthesia providers and OR RNs regarding implementation of the double-glove protocol
- **Timeline:**
  - Week 1
    - Educating all anesthesia providers and OR RNs regarding implementation of the double-glove protocol held on November 16, 2020.
    - Pre-Implementation SSI rate determined to be
  - Week 2
    - Implementation of the double-glove protocol into the ORs began on November 18, 2020.
  - Week3
    - Implementation of the double-glove protocol continued.
    - Collection of post-implementation infection rates obtained from a retrospective chart audit began.
  - Week 4
    - Collection of post-implementation infection rates obtained from a retrospective chart audit concluded.
  - Week 5
    - Analysis of the data collected utilizing the statistical t-test in the SPSS program

RESULTS

- **The project question:**
  - Will the implementation of a double-glove protocol in anesthesia based on evidence-based practice reduce surgical site infections?
- **Analysis showed:**
  - After analyzing the data, it was determined that infection rates decreased by 2% after implementation of the double-glove protocol by anesthesia providers.
  - The number of pre-implementation infections was 13 which decreased to 9 infections after implementation of the double-glove protocol by anesthesia providers.
  - Although the implementation of the double-glove protocol did provide a decrease in infections by 2%, a p-value of 0.382 indicated that this was not a statistically significant difference between SSI rates before and after the implementation of the double-glove protocol by anesthesia providers.
  - Therefore, the findings of this project suggest that more studies must be completed in order to verify the use of a double-glove protocol by anesthesia providers can decrease the rate of infections by a statistically significant amount.

Table 1

Percentage of SSIs at the Practice Site Pre- and Post-Implementation

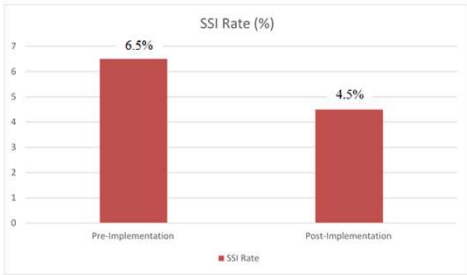
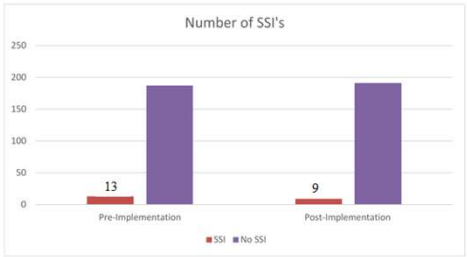


Table 2

Number of SSIs at the Practice Site Pre- and Post-Implementation



CONCLUSIONS

- The significance of these results showed that although a statistically significant difference between pre- and post-implementation infection rates did not occur, there was a decrease in SSIs from 13 infections pre-implementation to 9 infections post-implementation.
- This decrease in SSIs is significant to nursing practice and the surgical setting because a decrease in SSIs as a result of the double-glove protocol may help to decrease hospital costs, decrease patient pain, decrease length of hospital stay, and decrease mortality.
- The results of this project align with current literature that support the use of double-gloving to decrease infection rates and contamination.
- The implications to nursing regarding these results show that the use of the double-glove protocol is effective in reducing infection rates and contamination and could be applied to various areas of the nursing profession to improve patient outcomes.
- For instance, the double-glove protocol could be adopted during insertion of Foley catheters, central line dressing changes, and other procedures to improve infection rates.
- More research should be conducted to determine exactly how the double-glove protocol affects certain procedures and how much this protocol can reduce infection rates in other areas of nursing.

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