

Implementation of a Breast Bundle to Reduce Incidence of Infection: A Qualitative Initiative

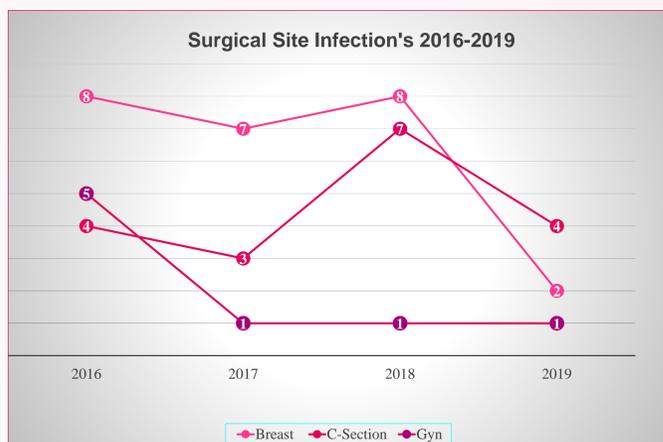
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Background

Surgical site infections (SSI) are an area of major concern due to the cost that it comes to the institution and the patient. An SSI is described as an infection 30 days after the surgical intervention and extend up to a year following surgery if an implant is utilized (Fabrizio et al., 2017). Based off of retrospective and current SSI rates, this is an area of concern for surgical patients undergoing breast surgery at Magee-Women's Hospital of UPMC Hamot. The rate of increased infections identified a need for intervention to decrease the rates of infection and improve post-operative patient outcomes.



Introduction

- The cost of an SSI extends beyond the financial burden to the institution and patient; it also linked to an increased risk of patient morbidity and mortality (Fabrizio et al., 2017). Breast surgical site infections was one of the highest contributors to hospital readmissions postoperatively.
- In the perioperative environment many measures are taken to ensure the safety of the patient, and to also reduce the chances of acquiring a surgical site infection. The patient is evaluated in three stages during their perioperative experience: preoperatively, intraoperatively, and postoperatively (Liu et al., 2018).
- The Breast Bundle Audit Tool (BBAT) was then created to identify modifiable and non-modifiable risk factors among this patient population. A bundle is a process encompassing the various stages in patient care and improving their experience to allow for positive patient outcomes (Liu et al., 2018).
- The evaluation of pre-existing conditions and encounters throughout the perioperative process allowed for the team to discuss whether the infection could have been prevented through measures taken by the perioperative team; or if the patient was predisposed to an SSI due to factors the team could not control.

Methodology

In 2019, 125 surgical breast cases were audited by the breast team. The cases ranged from oncological procedures to elective cosmetic procedures such as breast reductions and breast augmentations. The BBAT was utilized with direct observation of the breast cases or retrospective chart review. Data collection began in August and is ongoing. The data was collected via the BBAT and evaluated every three months. Two interventions were implemented to influence practice change to reduce the incidence of SSI's. The interventions that were implemented and evaluated were the use of impermeable disposable drapes and double gloving. The evaluation of the interventions was utilized in conjunction with the identification of potential risk factors predisposing the patient to the development of an SSI.

Surgeon: _____
Auditor: _____

PROCEDURE: _____

UPMC HAMOT WOMEN'S BREAST BUNDLE AUDIT TOOL

Patient Demographics		Patient Initials
Surgery Date	Referral:	Comorbid:
Hx of ALCL?	BMI:	
Yes	Yes	
No	No	
Hx of MRSA	Yes	No
Home CHG bath x2	Yes	No

Pre-op/Holding	Yes	No	Comments	Initials
CHG Wipe Used?				
Bair Hugger Provided Pre-op?			Pt Temp:	
Was BG Obtained?			N/A Result:	
CHG Bath Done at Home?			Date:	
Hx Chemo/Radiation?				

Intra-Op	Start of Case	End of Case	Comments	Initials
Temperature of Patient				
Was Temp <36 Degrees c any time during case?			Lowest temp?	
Time of Abx given?	Incision:		Abx given:	
Was Chloraprep used for skin prep?	Yes	No	Dry time 3 min?	
Temperature of OR	Start of Case	End of Case	Any Adjustments?	
Extra Warming Devices Used?	Yes	No	BH KC WB	
Double Gloving for all scrubbed team members?	Yes	No		
Any breach of sterility of scrubbed team members? (hole in glove, needle puncture, hair from bouffant, mask untied, contaminated to uncontaminated)	Yes	No	Explain:	
Any other skin barrier, draping, ioban used?	Yes	No		
Were Gloves Changed prior to implants being placed, after seed removal, moving from one operative site to another?	Yes	No		
Keep Dirty set-up separate from clean?	Yes	No		
Were Gloves changed Prior to closing?	Yes	No		
Which anti-biotic irrigation used?				
Who Applied Dressing?	Nurse	Scrub	Surgeon	NP
Wound Classification?				Resident/Student
ASA Score?				
Post-Op Debrief include EBL?	Yes	No	EBL:	
Total Number of Staff in Room During Case			# of scrubbed personnel:	

Version 2 Modified 10/31/2019

Results

- The data highlighted areas that can be modified in the perioperative environment as well as possible predisposing patient co-morbidities.
- BMI
 - Patient's who have a BMI >30 are at higher risk of acquiring a superficial infection due to the larger wound surface area which can easily dehisc from tension placed on the healing wound bed (Meijs et al., 2019).
 - Obese patients often also have comorbidities that can contribute to poor wound healing such as Type 2 Diabetes Mellitus which is an independent risk factor for SSI development (Meijs et al., 2019).
- Double Gloving
 - AORN currently recommends the use of a double gloving system during operative and other invasive procedures (Ogg, 2020).
 - Surgical gloves are a defense mechanism that protect the patient from transmission of bacteria from scrubbed personnel, as well as protecting the scrubbed personnel from exposure of bodily fluids (Barr et al., 2016).
 - 43.2% of scrubbed personnel did not use a double gloving system consisting of an indicator glove and outer glove.
- Utility Drapes
 - The possibility of direct contamination of the surgical field can be prevented with the use of surgical drapes (Kieser et al., 2018).
 - Prior to the implementation of using disposable drapes, re-sterilized towels were used in the draping process of the breast cases.
 - The results from the evaluation of this portion of the audit revealed 100% compliance of use of the disposable drapes.
 - Since the utilization of utility drapes, there has been a significant decrease of SSI's from 2018-2019.



<https://www.bbraunforsafety.com/content/dam/bbraun/global/microsite/safeinfusiontherapy/riskprevention/surgical-site-infections/VascoOPUnderglove.png.bb-52461508/VascoOPUnderglove.png>

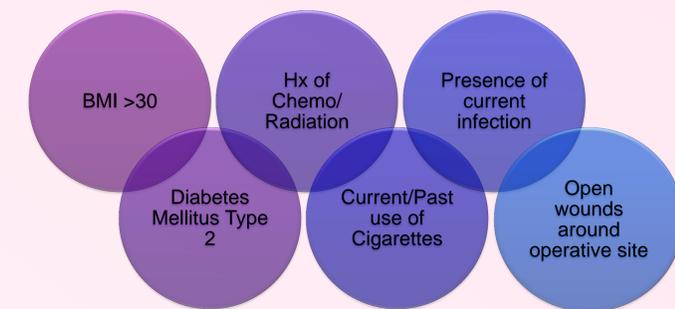


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Interventions

- Education plan developed for surgical staff on the importance of double gloving
 - Reviewed current AORN standards and recommendation
 - Held a meeting with breast surgeons to review the current practice and implications of double gloving
 - Developed an educational bulletin board discussing double gloving
- Spoke at quarterly hospital wide infection prevention meeting to discuss development of tool and goals
- Continued to encourage the use of utility drapes
- Flagged patients in the audit who would be determined high risk for infection development based on risk factors

Patient Risk Factors Identified by Audit Tool



Future Goals

- Achieve increased compliance with double gloving
- Continue educational plan and provide evidence supporting practice change
- Identify next intervention to implement and evaluate by using the BBAT
- Continue quarterly meetings with breast surgeons to update them on progress of BBAT and data collected

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