Implementation of Care Bundle Approach in Prevention of Surgical Site Infection in El Demrdash Hospital

Thesis

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تطبيق حزمة الحماية للوقاية من الإصابة بعدوى المواضع الجراحية في مستشفى الدمرداش

رسالة

توطئة للحصول علي درجة الدكتوراه في الباثولوجيا الاكلينيكية و الكيميائية

مقدمة من

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Mona Alaa Eldeen

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List of Abbreviations

Abb.	Full term
ACS-NSQIP	*American College of Surgeons National Surgical Quality Improvement Program*
AmpC	*Ambler Class C*
ASA	*American Society of Anesthesiologists*
ASHSP	*American Society of Health-System Pharmacists*
BA	*Boronic acid*
BA-MHT	*Boronic acid-based Modified Hodge test*
bla	*Beta -lactamase*
BSAC	*British Society for Antimicrobial Chemotherapy*
CAMHB	*Cation-adjusted Mueller-Hinton broth*
CA-MRSA	*Community acquired Methicillin resistant Staphylococcus aureus*
CC	*Clean contaminated*
CDC	*Center for Disease Control and Prevention*
CI	*Confidence interval*
CLSI	*Clinical Laboratory Standard Institute*
CONS	*Coagulase negative Staphylococci*
CPE	*Carbapenemase Producing Enterobacreiaceae*
CRE	*Carbapenem-resistant Enterobacteriaceae*
CRKP	*Carbapenem-resistant Klebsiella pneumoniae*
DH HII	*Department of Health's High Impact Intervention*
DM	*Diabetes mellitus*
EDTA	*Ethylene diamine tetra-acetic acid*
EMRSA	*Epidemic Methicillin Resistant Staphylococcus Aureus*

List of Abbreviations (Cont...)

Abb.	Full term
E-test	*Epsilometer test*
ETP	*Ertapenem*
EUCAST	*European Committee on Antimicrobial Susceptibility Testing*
F	*Female*
GNB	*Gram-negative bacilli*
HAI	*Healthcare-associated infections*
HA-MRSA	*Healthcare-acquired infections Methicillin Resistant Staphylococcus Aureus*
HCA-CO	*Healthcare-associated, community onset*
HICPAC	*Healthcare Infection Control Practices Advisory Committee*
HPS	*Health Protection Scotland*
IEF	*Isoelectric focusing*
KPC	*Klebsiella pneumoniae carbapenemases*
LAMP	*Loop- mediated Isothermal Amplification*
MALDI-TOF.MS	*Matrix-assisted laser desorption ionization-time of flight mass spectrometry*
MEM	*Meropenem*
MHA	*Mueller-Hinton agar*
MHT	*Modified Hodge test*
MIC	*Minimum inhibitory concentration*
MLST	*Multilocus sequence typing*
mPCR	*Multiplex polymerase chain reaction*
MR-CoNS	*Methicillin-resistant coagulase negative Staphylococcus species*
MRSA	*Methicillin Resistant Staphylococcus Aureus*

List of Abbreviations (Cont...)

Abb.	Full term
MSSA	*Methicillin Sensitive Staphylococcus Aureus*
N	*Number*
NHS	*National services Scotland*
NHSN	*National Healthcare Safety Network*
NICE	*National Institute for Health and Care Excellence*
NPV	*Negative Predective Value*
NS	*Non Significant*
OMSA	*Oxacillin Mannitol salt agar*
OR	*Odds ratio*
OR	*Operating rooms*
ORSAB	*Oxacillin resistant screen agar base*
OXA	*Oxacillin*
OXA-MHT	*Oxacillin-based Modified Hodge test*
PBA	*Phenyl boronic acid*
PBP	*Penicillin-binding protein*
PBP-LA	*Penicillin binding protein 2a latex agglutination*
PCR	*Polymerase Chain Reaction*
PCR-RFLP	*Polymerase chain reaction restriction fragment length polymorphism*
PFGE	*Pulsed-Field Gel Electrophoresis*
PPV	*Positive Predective Value*
PVL	*Panton-Valentine leukocidin*
S	*Significant*
S. aureus	*Staphylococcus aureus*
SAP	*Surgical antibiotic prophylaxis*
SCC	*Staphylococcal cassette chromosome*
SCIP	*Surgical Care Improvement Project*

List of Abbreviations (Cont...)

Abb.	Full term
SD	*Standard deviation*
Sig	*Significant*
SLST	*Single-locus sequence typing*
SNPs	*Single Nucleotide Polymorphism*
SPSS	*Statistical package for Social Science*
SSI	*Surgical Site Infection*
USA	*United States of America*
UTI	*Urinary tract infection*
VTE	*Venous thromboembolic event*
WHO	*World Health Organization*

INTRODUCTION

Surgical site infection (SSI) is one of the most common Healthcare Associated Infection (HAI), estimated to account for 18.6% of inpatient HAI. It is associated with a mortality rate up to 75% ***(Awad, 2012).***

Surgical site infection (SSI) is one of the most frequent complication in abdominal surgery. It is associated with prolonged hospital stay, a compromised quality of life and an increase in morbidity and mortality. The center for disease control and Prevention (CDC) defined SSI as the infection which presents in or near the surgical incision during the first 30 days in superficial incisions and for 90 days in deep incisions and organ space. The SSI appears when the bacterial inoculum exceeds the immune system's ability to control it ***(CDC, 2014).***

The source of SSI can result from the skin organisms prior to surgery, from surgical instruments, from the environment during surgery; or during provision of care post surgery. The SSIs are the most preventable of all HAI. Most importantly the key interventions focus on removing microorganisms from the skin prior to surgery as well as minimizing the chance of multiplication of microorganisms during the surgical procedure; decreasing the impact of existing co-morbidities on the immune response of the patient undergoing the surgical procedure; and reducing the risk of