WHO Check List: Surgical Site Infection

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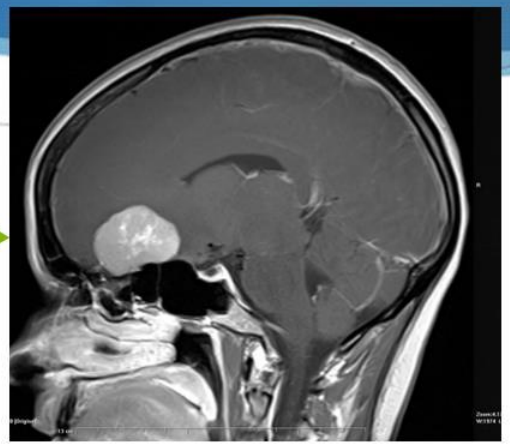
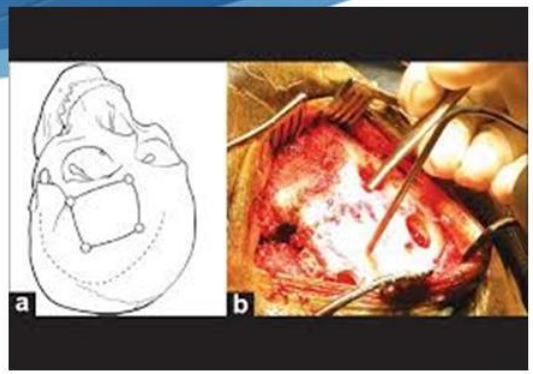
Objectives

- Highlight the significance of surgical site infection (SSI)
- Review the epidemiology of SSI
- Explore causes and mechanisms
- Describe evidence-based practices to prevent SSI
- Review the use of WHO checklist to reduce SSI

SSI: Is it important?

A 37-yr old gentle presented with headaches and personality change





He made excellent recovery and was discharged home by postop day 4

10 days later, he attended the ward for a review because he was feeling generally unwell, pyrexial with pus discharge from his wound

Wound swab = S. Aureus

Epidemiology

- SSI occurs within 30 days of the operation.
- SSI rate is 2-7%; mortality rate 3%.
- Increases the length of hospital stay by 7-10 days.
- Cost estimates = $30,000/ SSI.

SSI: Pathogenesis

Endogenous

- ❖ Patient Flora
  - Skin
  - GI
  - Mucous membranes
- ❖ Seeding from pre-existing sites of infection

Exogenous

- Staff flora
- Breaks in aseptic techniques
- Inadequate hand hygiene
- Suboptimal equipment sterilization
- Compromised operating environment

SSI: Pathogens

Table 2. Distribution of microorganisms isolated from patients with SSI. Uberaba-MG, 2005-2010.

Isolated microorganisms	n (%)
Staphylococcus aureus	12 (27,3)
Klebsiela pneumoniae	6 (13,7)
Staphylococcus epidermidis	4 (9,1)
Escherichia coli	4 (9,1)
Staphylococcus coagulase negativa	3 (6,8)
Cedecea davisae	3 (6,8)
Enterobacter cloacae	3 (6,8)
Pseudomonas aeruginosa	2 (4,5)
Acynetobacter baumanii	2 (4,5)
Enterobacter aerogenes	1 (2,3)
Corynebacterium spp.	1 (2,3)
Bastonetes gram-negativos	1 (2,3)
Morganela morganii	1 (2,3)
Acynetobacter calcoaceticcus	1(2,3)

What may influence SSI

- Duration of surgical scrub
- Skin anti-sepesis
- Preop shaving
- Duration of operation
- Antimicrobial prophylaxis
- Operating room ventilation
- Inadequate sterilization
- Foreign material in surgical site
- Surgical drains
- Surgical technique

Strategies to Prevent SSI
WHO checklist

Surgical Safety Checklist

World Health Organization | Patient Safety
A World Alliance for Safer Health Care

Before induction of anaesthesia
(with at least nurse and anaesthetist)

Has the patient confirmed his/her identity, site, procedure, and consent?
- ☐ Yes

Is the site marked?
- ☐ Yes
- ☐ Not applicable

Is the anaesthesia machine and medication check complete?
- ☐ Yes

Is the pulse oximeter on the patient and functioning?
- ☐ Yes

Does the patient have a:

Known allergy?
- ☐ No
- ☐ Yes

Difficult airway or aspiration risk?
- ☐ No
- ☐ Yes, and equipment/assistance available

Risk of >500ml blood loss (7ml/kg in children)?
- ☐ No
- ☐ Yes, and two IVs/central access and fluids planned

Before skin incision
(with nurse, anaesthetist and surgeon)

- ☐ **Confirm all team members have introduced themselves by name and role.**
- ☐ **Confirm the patient's name, procedure, and where the incision will be made.**

Has antibiotic prophylaxis been given within the last 60 minutes?
- ☐ Yes
- ☐ Not applicable

Anticipated Critical Events

To Surgeon:
- ☐ What are the critical or non-routine steps?
- ☐ How long will the case take?
- ☐ What is the anticipated blood loss?

To Anaesthetist:
- ☐ Are there any patient-specific concerns?

To Nursing Team:
- ☐ Has sterility (including indicator results) been confirmed?
- ☐ Are there equipment issues or any concerns?

Is essential imaging displayed?
- ☐ Yes
- ☐ Not applicable

Before patient leaves operating room
(with nurse, anaesthetist and surgeon)

Nurse Verbally Confirms:
- ☐ The name of the procedure
- ☐ Completion of instrument, sponge and needle counts
- ☐ Specimen labelling (read specimen labels aloud, including patient name)
- ☐ Whether there are any equipment problems to be addressed

To Surgeon, Anaesthetist and Nurse:
- ☐ What are the key concerns for recovery and management of this patient?

WHO Safety Checklist
Sign in

Before Surgery

- Identify patient related risks:
  - Age, DM, Malnutrition, Steroids
- Minimize preop stay
- Identify pre-existing infections
- Endogenous colonization
- Hair removal

WHO Safety Checklist
Time out

At Surgery

- Antibiotic Prophylaxis
- Exogenous colonization
- Normothermia
- Supplemental oxygen
- Blood sugar control

WHO Safety Checklist
Sign out

After Surgery

- Appropriate wound management
- Antibiotic discontinuation

No more excuses!

We have to get involved

- Decolonize
- Clipping instead of shaving
- Antibiotics within 1hr of incision, stop within 24 hrs
- Skin anti-sepsis
- Perioperative normothormia
- Proper hand anti-sepsis
- Preop showering
- Mechanical bowel prep
- Supplemental oxygen
- Surgical drapes and wound dressing
- Perioperative glycemic control
- Surgical masks