# Surgical Safety Checklist

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# Objectives of this presentation

- What a surgical safety checklist is
- Why it is important

# Introduction

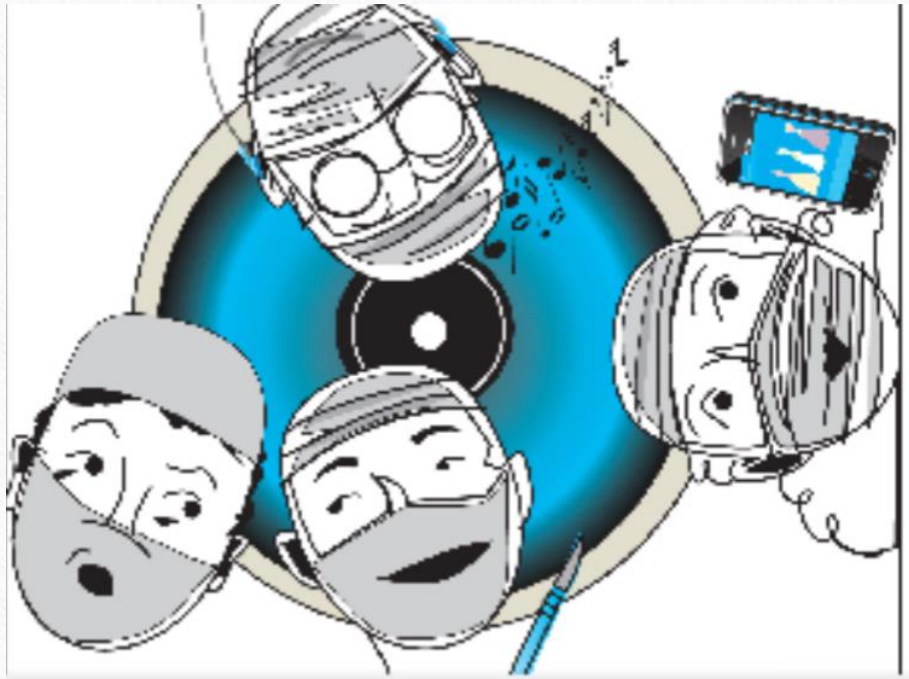
- Surgery has become an integral part of global health care, with an estimated 234 million operations performed yearly
- Each week in the US wrong-site surgery occur over 40 times
- Foreign objects are left inside patient's body 39 times, and these mistakes and their associated complications are common and preventable
- A surgical safety checklist was designed to improve team communication and consistency of care would reduce complications and deaths associated with surgery

# Introduction (Contd )

- Surgery is performed in every community:
- Wealthy and poor, rural and urban, and in all regions
- Although surgical care can prevent loss of life or limb, it is also associated with a considerable risk of complications and death
- The risk of complications is poorly characterized in many parts of the world, but studies in industrialized countries have shown a perioperative rate of death from inpatient surgery of 0.4 to 0.8 % and a rate of major complications of 3 to 17 %
- Data suggest that at least half of all surgical complications are avoidable

# Central problems in surgical safety

- 1. Unrecognized as a public health issue
- 2. Lack of data on surgery and outcomes
- 3. Failure to use existing safety know-how



# Problem 1: Unrecognized as public health issue

- Burden of surgical disease is increasing worldwide
  - Cardiovascular disease
  - Traumatic injuries
  - Cancer
  - Longer life expectancies

# Problem 1: Unrecognized as public health issue (Contd )

- Known surgical complications
- of 3 – 16 %
-

=

- Known death rates of
- 0.4 – 0.8 %

- At least 7 million disabling complications, including 1 million deaths – worldwide each year

# Problem 2: Lack of Data on Surgery and Outcomes

- Improvement in maternal mortality depended on routine surveillance
- Such surveillance is lacking for surgical care

# Problem 3: Failure to use existing safety know-how

- High rates of preventable surgical site infection result from inconsistent timing of antibiotic prophylaxis
- Anesthetic complications are 100 – 1000x higher in countries that do not adhere to monitoring standards
- Wrong-patient , wrong-site operations

# Reality Check

- Currently, hospitals do MOST of the right things, on MOST patients, MOST of the time
- The checklist helps us do ALL the right things, on ALL patients, ALL time

# Data Collection at a National Level ( Surgical Vital Statistics )

- Number of surgical procedures performed in the operating theatre per 100,000 population per year
- Number of Operating Theatres per 100,000 population
- Number of surgeons per 100,000 population
- Number of anaesthesia professional per 100,000 population
- Day-of-surgery mortality rate
- Postoperative in-hospital mortality rate

# Easy Math

- 234 million people are operated on each year, and > 1 million of these individuals die from complications
- + At least half are avoidable with the CHECKLIST


# Surgical Safety Checklist

- In 2008, the World Health Organization ( WHO ) published guidelines identifying multiple recommended practices to ensure the safety of surgical patients worldwide
- On the basis of these guidelines, a checklist intended to be globally applicable and to reduce the rate of major surgical complications
- The implementation of this checklist and the associated culture changes it signified would reduce the rates of death and jamor complications after surgery in diverse settings

# The role of surgical safety checklist

- The checklist consists of an oral conformation by surgical teams of the completion of the basic steps for ensuring:
- Safe delivery of anesthesia
- Prophylaxis against infection,
- Effective teamwork,
- And other essential practices in surgery

# Safe Site Surgery will help the surgical team to avoid:

- Surgical deaths and errors
- The adverse legal issues
- Surgical infection
- Poor communication among surgical team members

# How the checklist is used

- It is used at three critical junctures in care:
- Before the patient is taken out of the operating room
- The WHO surgical safety checklist represent a simple set of surgical safety operating room standards that are applicable in all countries and settings
- The checklist is not intended to be comprehensive
- Additions and modifications to fit local practices are encouraged

- A set of Safety Checks has been assembled to reduce the number and severity of adverse events involving:
- Surgeons
- Anaesthesiologists
- Nurses
- Public health experts

# WHO's 10 Objectives for Safe Surgery

- 1. The team will operate on the correct patient at the correct site
- 2. The team will use methods known to prevent harm from administration of anaesthetics, while protecting the patient from pain
- 3. The team will recognize and effectively prepare for life-threatening loss of airway or respiratory function
- 4. The team will recognize and effectively prepare for risk of high blood loss
- 5. The team will avoid inducing an allergic or adverse drug reaction for which the patient is known to be at significant risk

# WHO's 10 Objectives for Safe Surgery

- 6. The team will consistently use methods known to minimize the risk for surgical site infection
- 7. The team will prevent inadvertent retention of instruments or sponges in surgical wounds
- 8. The team will secure and accurately identify all surgical specimens
- 9. The team will effectively communicate and exchange critical information for the safe conduct of the operation
- 10. Hospitals and public health systems will establish routine surveillance of surgical capacity, volume and results

# Advantages of Using a Checklist

- Customizable to local setting and needs
- Supported by evidence
- Evaluated in diverse settings around the world
- Promotes adherence to established safety practices
- Minimal resources required to implement a far-reaching safety intervention

# Three elements of the Surgical Safety Checklist

- Sign In
- Time Out
- Sign Out

Surgical Safety Checklist

World Health Organization | Patient Safety

**Before induction of anaesthesia** → **Before skin incision** → **Before patient leaves operating room**

(with at least nurse and anaesthetist) | (with nurse, anaesthetist and surgeon) | (with nurse, anaesthetist and surgeon)

**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

**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

**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?

This checklist is not intended to be comprehensive. Additions and modifications to fit local practice are encouraged.

Revised 1 / 2009

# Sign In ( Briefing )

- Before induction of anaesthesia, members of the team ( at least the nurse and an anaesthesia professional ) orally comfirm that:
  - The patient has verified his or her identiy, the surgical site and procedure, and consent
  - The surgical site is marked or site marking is not applicable
  - The pulse oximeter is on the patient and functioning
  - All members of the team are aware of whether the patient has a known allergy
  - The patient's airway and risk of aspiration have been evaluated and appropriate equipment and assistance are available
  - If there is a risk of blood loss of at least 500 ml ( or 7ml/kg of body weight, in children ), appropriate access and fluids are available

## Before induction of anaesthesia ►►►►►►►►►

**SIGN IN**

☐ **PATIENT HAS CONFIRMED**
- IDENTITY
- SITE
- PROCEDURE
- CONSENT

☐ **SITE MARKED/NOT APPLICABLE**

☐ **ANAESTHESIA SAFETY CHECK COMPLETED**

☐ **PULSE OXIMETER ON PATIENT AND FUNCTIONING**

**DOES PATIENT HAVE A:**

**KNOWN ALLERGY?**
☐ NO
☐ YES

**DIFFICULT AIRWAY/ASPIRATION RISK?**
☐ NO
☐ YES, AND EQUIPMENT/ASSISTANCE AVAILABLE

**RISK OF >500ML BLOOD LOSS (7ML/KG IN CHILDREN)?**
☐ NO
☐ YES, AND ADEQUATE INTRAVENOUS ACCESS AND FLUIDS PLANNED

# Time Out ( Surgical pause )

- Before skin incision, the entire team ( nurses, surgeons, anaesthesia professionals, and any others participating in the care of the patient ) orally
- Confirms that all team members have been introduced by name and role
- Confirms the patient's identity, surgical site, and procedure
- Reviews the anticipated critical events
- Surgeon reviews critical and unexpected steps, operative duration, and anticipated blood loss
- Anaesthesia staff review concerns specific to the patient
- Nursing staff review confirmation of sterility, equipment availability, and other concerns made or that antibiotics are not indicated
- Confirms that all essential imaging results for the correct patient are displayed in the operating room

## Before skin incision ►►►►►►►►►►►►►

### TIME OUT

- ☐ CONFIRM ALL TEAM MEMBERS HAVE INTRODUCED THEMSELVES BY NAME AND ROLE

- ☐ SURGEON, ANAESTHESIA PROFESSIONAL AND NURSE VERBALLY CONFIRM
  - PATIENT
  - SITE
  - PROCEDURE

**ANTICIPATED CRITICAL EVENTS**

- ☐ **SURGEON REVIEWS:** WHAT ARE THE CRITICAL OR UNEXPECTED STEPS, OPERATIVE DURATION, ANTICIPATED BLOOD LOSS?

- ☐ **ANAESTHESIA TEAM REVIEWS:** ARE THERE ANY PATIENT-SPECIFIC CONCERNS?

- ☐ **NURSING TEAM REVIEWS:** HAS STERILITY (INCLUDING INDICATOR RESULTS) BEEN CONFIRMED? ARE THERE EQUIPMENT ISSUES OR ANY CONCERNS?

**HAS ANTIBIOTIC PROPHYLAXIS BEEN GIVEN WITHIN THE IN LAST 60 MINUTES?**

- ☐ YES
- ☐ NOT APPLICABLE

**IS ESSENTIAL IMAGING DISPLAYED?**

- ☐ YES
- ☐ NOT APPLICABLE

# Sign Out

- Before the patient leaves the operating room:
- Nurse reviews items aloud with the team
- Name of the procedure as recorded
- That the needle, sponge, and instrument counts are complete ( or not applicable )
- That the specimen ( if any ) is correctly labeled, including with the patient's name
- Whether there are any issues with equipment to be addressed
- The surgeon, nurse, and anaesthesia professional review aloud the key concerns for the recovery and care of the patient

## Before patient leaves operating room

**SIGN OUT**

**NURSE VERBALLY CONFIRMS WITH THE TEAM:**

- ☐ **THE NAME OF THE PROCEDURE RECORDED**
- ☐ **THAT INSTRUMENT, SPONGE AND NEEDLE COUNTS ARE CORRECT** (OR NOT APPLICABLE)
- ☐ **HOW THE SPECIMEN IS LABELLED** (INCLUDING PATIENT NAME)
- ☐ **WHETHER THERE ARE ANY EQUIPMENT PROBLEMS TO BE ADDRESSED**

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- ☐ **SURGEON, ANAESTHESIA PROFESSIONAL AND NURSE REVIEW THE KEY CONCERNS FOR RECOVERY AND MANAGEMENT OF THIS PATIENT**

# Some important considerations for the nurse

- Is the patient fasting ( Nil Per Oral – NPO ) ? When did the patient eat last ?
- Is the necessary imaging displayed ?
- Are the surgical items that you have "pulled" what the surgeon needs ? Do you need to check with the surgeon first ?
- Is the patient situated on the table without unnecessary pressure that could cause nerve damage ? How long will the procedure take ?
- Are all members of the team ready to start ?

# Outcomes of the checklist

- Introduction of the WHO Surgical Safety Checklist into operating rooms in various hospitals around the world was associated with marked improvements in surgical outcomes
- Postoperative complication rates fell by 36 % on average, and death rates fell by a similar amount
- The reduction in the rates of death and complications suggests that the checklist program can improve the safety of surgical patients in diverse clinical and economic environments

World Health Organization
Europe
Organisation mondiale de la Santé
Europe
Weltgesundheitsorganisation
Europa
Всемирная организация здравоохранения
Европейское региональное бюро

# Safe Surgery Concept. WHO Surgical Safety Checklist.

Dr Evgeny Zheleznyakov,
WHO European Centre for Primary Health Care, Division of Health Systems and Public Health, WHO Regional Office for Europe

## FACTS ON PATIENT SAFETY

**Patient Safety**
Patient safety is the absence of preventable harm to a patient during the process of health care and reduction of risk of unnecessary harm associated with health care to an acceptable minimum.

- **Magnitude**
  1 in 10 patients are harmed whilst receiving health care
- **Incidence**
  Approximately 43 million patient safety incidences occur every year
- **Medications**
  Medication errors cost an estimated 42 billion USD annually
- **Spending**
  15% of hospital expenditure is due to adverse events (venous thromboembolism, pressure ulcers, infections)

## More than one million patients die annually from surgical complications

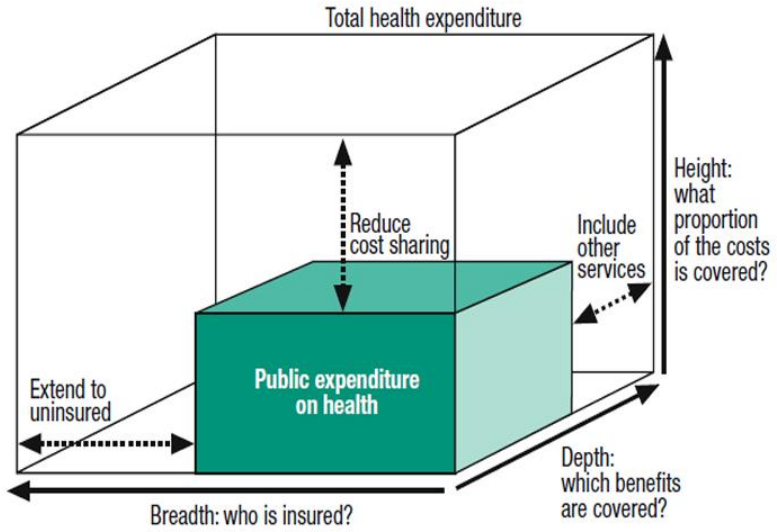
USD annually

- **Spending**

15% of hospital expenditure is due to adverse events (venous thromboembolism, pressure ulcers, infections)

## More than one million patients die annually from surgical complications

Findings by WHO suggest that surgery still results in high rates of morbidity and mortality globally, with at least 7 million people a year experiencing disabling surgical complications, from which more than 1 million die. Although perioperative and anaesthetic-related mortality rates have progressively declined over the past 50 years, partially as a result of efforts to improve patient safety in the perioperative setting, they still remain two to three times higher in low- and middle-income countries than in high-income countries.




**Safety is a cornerstone of quality in health care and its**

Breadth: who is insured?

are covered?

## Safety is a cornerstone of quality in health care and its success requires individual and team commitment

**Figure A.2.2.** The Canadian Framework
The Safety Competencies – Enhancing patient safety across the health professions


Source: *The Safety Competencies*, Canadian Patient Safety Institute, 2009 [2].

**Patient safety culture:**
a culture that exhibits the following five qualities that guarantee a strong safety management systems:

(1) a culture where all health-care workers (including front-line staff, physicians, and administrators) accept responsibility for the safety of themselves, their coworkers, patients, and visitors

(2) a culture that prioritizes safety above financial and operational goals

(3) a culture that encourages and rewards the identification, communication, and resolution of safety issues

(4) a culture that provides for organizational learning from accidents

(5) a culture that provides appropriate resources, structure, and accountability to maintain effective safety systems

## The 11 topics of patient safety learning
(from WHO Curriculum Guide)

learning from accidents

(5) a culture that provides appropriate resources, structure, and accountability to maintain effective safety systems

## The 11 topics of patient safety learning
(from WHO Curriculum Guide)

1. What is patient safety?
2. **Why applying human factors is important for patient safety?**
3. **Understanding systems and the effect of complexity on patient care**
4. Being an effective team player
5. Learning from errors to prevent harm
6. Understanding and managing clinical risk
7. Using quality-improvement methods to improve care
8. Engaging with patients and carers
9. Infection prevention and control
10. **Patient safety and invasive procedures**
11. Improving medication safety

# Patient safety and invasive procedures

- Patients having surgery or other invasive procedures are by default at a higher risk of infection or receiving the wrong treatment

- Major causes of patient safety failures in surgery:
  - poor communication
  - lack of leadership
  - inadequate attention to processes
  - noncompliance with guidelines
  - overwork
  - In developing countries: understaffing, inadequate structures and overcrowding, lack of health-care commodities

and shortage of basic equipment, poor hygiene

- Multiple factors are at play in surgery
- Competencies:

**Knowledge**
**Skills**
**Behaviours and attitudes**

Patient safety and invasive procedures

Skills

Behaviours and attitudes

## Patient safety and invasive procedures

**Arthroscopy performed on wrong knee**

Brian injured his left knee while exercising and was referred by his local doctor to an orthopaedic surgeon. The orthopaedic surgeon obtained consent to perform an examination of the left knee under anaesthetic as a day surgery procedure. As part of the ordinary preoperative process, two registered nurses confirmed that his signature appeared on the consent form for an elective examination on his left knee.

The surgeon talked to Brian before he entered the operating theatre, but did not confirm which knee was to be operated on. Brian was taken into the operating theatre and anaesthetised. The anaesthetic nurse saw a tourniquet draped over his right leg and applied it. She and another staff member applied a bandage to limit blood flow. The enrolled nurse checked the intended side on the theatre list so that she could set up. When she saw the orthopaedic surgeon preparing the right leg, she told him that she thought the other leg was the intended operative site. The doctor was heard by both the enrolled nurse and scrub nurse to disagree and the right (incorrect) knee was operated on.

Source: Case studies–professional standards committees. *Health Care Complaints Commission Annual Report* 1999–2000:64. Sydney, New South Wales, Australia.

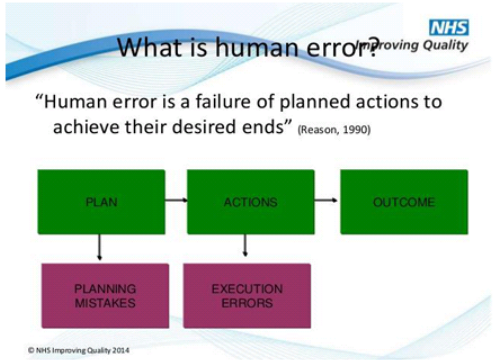
## Doctors should demonstrate their ability to:

- follow verification processes to avoid wrong patient, wrong side and wrong procedure errors (e.g. a surgical checklist)
- practice techniques that reduce risks and errors (e.g. time-outs, briefings, debriefings, stating concerns)
- participate in an educational process for reviewing mortality and morbidity
- actively engage as a team member
- actively engage with the patient at all times

## Managing human factor

- actively engage with the patient at all times

# Managing human factor




- Application of proactive techniques aimed at minimizing and learning from errors or near misses
- A work culture that encourages reporting of adverse events and near misses in health care allows the patient safety to improve

***Example:*** *Aviation industry that has embraced the study of human factors as an approach to improving safety. Since the mid-1980's, aviation has accepted human fallibility as inevitable and, rather than demand constant perfection that is not sustainable and publicly punishing error, this industry has designed systems to minimize the impact of human error.*

# Long shifts issue

**Nurses: Too Tired To Be Safe?**

Tuesday, July 20, 2004

**The News**. What's true of doctors is true of registered nurses: Those who routinely work long, often unpredictable hours, such as shifts that exceed 12 hours, make more mistakes than those who work fewer hours.

That's the conclusion of a federally funded study in the July/August issue of the journal *Health Affairs*. The study is one of the first to examine the relationship between medical errors and fatigue among registered nurses, who provide most of the direct care to hospital patients.

**The Study**. Ann Rogers, an associate professor at the University of Pennsylvania School of Nursing, and her colleagues studied 393 nurses who worked full time in hospitals around the country. Nearly all were female and most were white, middle-aged, employed by large urban hospitals and had more than a decade of experience.

For two weeks, each nurse kept a detailed log of her hours, breaks and mistakes. Overall, 199 errors and 213 near-errors were detected, usually by the nurses themselves. Most errors or near-errors involved medication, including the wrong drug, wrong dose, wrong patient, wrong method of administration, wrong time or failure to give it altogether.

Errors and near-errors increased when nurses' shifts exceeded 12 hours per day, when their work weeks exceeded 40 hours or when they worked unplanned overtime at the end of a regular shift. "Nurses are no different than other occupational groups" Rogers said. "When they work longer hours, the risk of errors goes up."

**The Impact on Patients**. Like previous studies of medical residents, this one did not attempt to link errors directly to patient harm. An earlier study conducted in Pennsylvania found that adding an extra surgical patient to a nurse's workload increased her patients' chances of dying or suffering a serious complication.

**And More Broadly**. Concern about the prevalence of medical errors and the effects of fatigue on doctors-in-training have led to new rules in some specialties that limit their work weeks to 80 hours and shifts to a maximum of 24 hours. Some states are considering imposing limits on nurses' shifts, which have lengthened in the past decade because of staff cutbacks by hospitals as well as a nationwide nursing shortage.

Source: Goodman SG. *Nurses: too tired to be safe?* Washington Post. Tuesday, 20 July 2004.


# 'Swiss cheese' model approach to errors in health care

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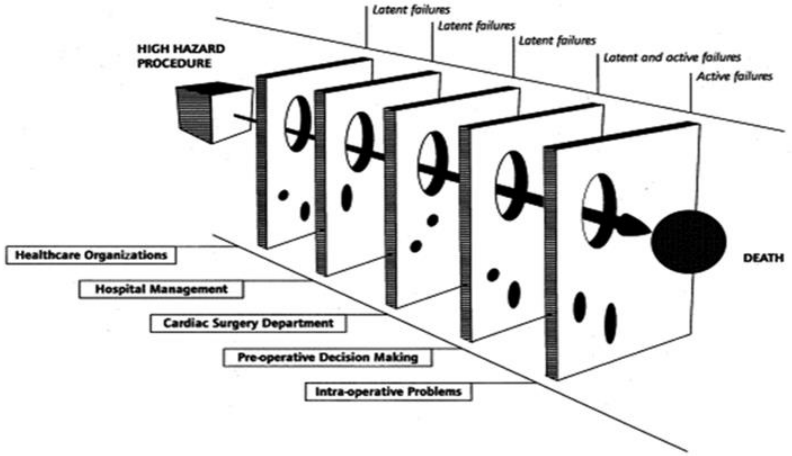
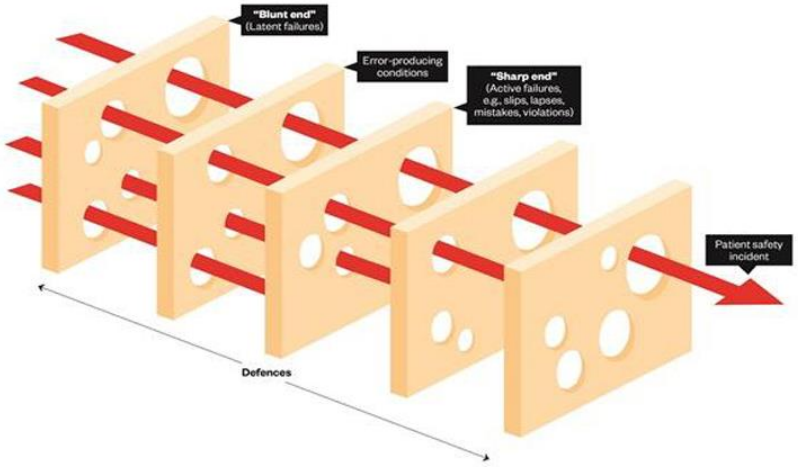



There is rarely ever one cause of an accident




Factors of the system

# Factors of the system

- ***Patient and provider factors***
- ***Task factors***
including the tasks themselves, as well as workflow, time pressure, job control and workload
- ***Technology and tool factors***
- ***Team factors***
Multidisciplinary teams, team communication, role clarity and team management
- ***Environmental factors***
Including lighting, noise and physical space and layout
- ***Organizational factors***
Including leadership characteristics, culture, regulations and policies, levels of hierarchy and supervisors' span of control.

**Box 2: Five facts about surgical safety**

1. Complications after inpatient operations occur in up to 25% of patients.
2. The reported crude mortality rate after major surgery is 0.5–5%.
3. In industrialized countries nearly half of all adverse events in hospitalized patients are related to surgical care.
4. At least half of the cases in which surgery led to harm are considered to be preventable.
5. Known principles of surgical safety are inconsistently applied even in the most sophisticated settings.

## Main adverse events and their causes in surgery

**Main adverse events associated with surgical care include:**

## Main adverse events and their causes in surgery

**Main adverse events associated with surgical care include:**

- infections and postoperative sepsis,
- cardiovascular complications,
- respiratory complications
- thromboembolic complications

**Three main causes of adverse events in surgery:**

1. Poor infection control

2. Inadequate patient management

3. Failure of health staff to communicate effectively before, during and after procedures

### Causes of adverse events associated with surgical and other invasive procedures

- The traditional way of explaining adverse events associated with surgery and other invasive procedures is usually related to the skills of the surgeon or person performing the procedure and the age and physical condition of the patient.
- Adverse surgical (and other procedural) outcomes are associated with many other factors, such as the design of the workplace and its interface with the people who work there, teamwork and organizational culture.

- Safe surgery requires effective team work–this means that the doctors, nurses and other staff all have clearly defined roles and responsibilities and that each member of the team knows the roles of other members of the team.
- A systems approach to surgical and procedural adverse events requires us to examine both latent factors, such as teamwork and inadequate leadership, and sharp-end factors (the point of care), such as communication during hand-offs and poor history taking.

## Box 3: System-wide approach to improved surgical safety

## Box 3: System-wide approach to improved surgical safety

There is no single remedy that will improve surgical safety. It requires reliable completion of a sequence of necessary steps in care, not just by the surgeon, but by a team of health-care professionals working together within a supportive health system for the benefit of the patient.

### Box 5: Ten essential objectives for safe surgery

| | |
|---|---|
| Objective 1. | The team will operate on the correct patient at the correct site. |
| Objective 2. | The team will use methods known to prevent harm from anaesthetic administration, while protecting the patient from pain. |
| Objective 3. | The team will recognize and effectively prepare for life-threatening loss of airway or respiratory function. |
| Objective 4. | The team will recognize and effectively prepare for risk of high blood loss. |
| Objective 5. | The team will avoid inducing an allergic or adverse drug reaction known to be a significant risk to the patient. |
| Objective 6. | The team will consistently use methods known to minimize risk of surgical site infection. |
| Objective 7. | The team will prevent inadvertent retention of sponges or instruments in surgical wounds. |
| Objective 8. | The team will secure and accurately identify all surgical specimens. |
| Objective 9. | The team will effectively communicate and exchange critical patient information for the safe conduct of the operation. |
| Objective 10. | Hospitals and public health systems will establish routine surveillance of surgical capacity, volume and results. |

## What is patient safety?

**Caroline's story**

On 10 April 2001, Caroline, aged 37, was admitted to a city hospital and gave birth to her third child in an uncomplicated caesarean delivery. Dr A was the obstetrician and Dr B was the anaesthetist who placed the epidural catheter. On 11 April, Caroline reported that she felt a sharp pain in her spine and had accidentally bumped the epidural site the night before the epidural was removed. During

Caroline's pain was helped by the medications until 2 May when her condition deteriorated. Her husband then took her to the local country hospital in a delirious state. Shortly after arriving at the hospital on 3 May, she started convulsing and mumbling incoherently. Dr C, recorded in the medical records "? Excessive opiate usage, sacroiliitis". Her condition was critical by this stage and she was rushed

information for the safe conduct of the operation.

Objective 10. Hospitals and public health systems will establish routine surveillance of surgical capacity, volume and results.

## What is patient safety?

**Caroline's story**

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For the next seven days, Caroline remained at her home in the country. She telephoned Dr A about her fever, shaking, intense low back pain and headaches. On 24 April, the local medical officer, Dr C, examined Caroline and her baby and recommended that they both be admitted to the district hospital for back pain and jaundice, respectively.

The admitting doctor at the district hospital, Dr D, recorded that Caroline's back pain appeared to be situated at the S1 joint rather than at the epidural site. On 26 April, the baby's jaundice had improved, but Caroline had not yet been seen by the general practitioner, Dr E, who acknowledged that he had forgotten about her. The medical registrar, Dr F, examined Caroline and diagnosed sacroiliitis. He discharged her with prescriptions for oxycodone hydrochloride, paracetamol, and diclofenac sodium. He also informed Caroline's obstetrician, Dr A, of his diagnosis.

Caroline's pain was helped by the medications until 2 May when her condition deteriorated. Her husband then took her to the local country hospital in a delirious state. Shortly after arriving at the hospital on 3 May, she started convulsing and mumbling incoherently. Dr C, recorded in the medical records "? Excessive opiate usage, sacroiliitis". Her condition was critical by this stage and she was rushed by ambulance to the district hospital.

By the time she arrived at the district hospital, Caroline was unresponsive and needing intubation. Her pupils were noted to be dilated and fixed. Her condition did not improve and on 4 May she was transferred by ambulance to a second city hospital. At 1.30pm on Saturday 5 May, she was determined to have no brain function and life support was withdrawn.

A postmortem examination revealed an epidural abscess and meningitis involving the spinal cord from the lumbar region to the base of the brain, with cultures revealing a methicillin-resistant *Staphylococcus aureus* (MRSA) infection. Changes to the liver, heart and spleen were consistent with a diagnosis of septicemia.

The coronial investigation concluded that Caroline's abscess could and should have been diagnosed earlier. The following discussion of the coroner's report into the death of Caroline Anderson highlights many of the issues addressed in this multi-professional edition of the WHO Patient Safety Curriculum Guide.

## Typical errors in patient management known to cause adverse events

- Failure to take precautions to prevent accidental injury;
- Avoidable delays in treatment;
- Failure to take adequate history or physical examination;
- Failure to employ indicated tests;
- Failure to act upon the results of findings or tests;
- Practicing outside an area of expertise (e.g. failure to consult, refer, seek assistance,
- transfer);
- Communication failures

**Miscommunication** is one of the biggest problems in the operating environment. Miscommunication has been responsible for the wrong patients having surgery, patients having operations on the wrong side or site, and the wrong procedure being performed. Failure to communicate changes in the patient's condition and failure to administer prophylactic antibiotics have also resulted in adverse events.

**Types of communication failure associated with doctors: illustrative examples and notes**

| Type of Failure | Definition | Illustrative example and analytical note (*in italics*) |
|---|---|---|

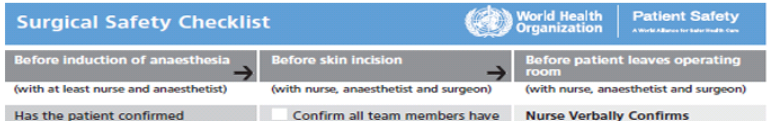
administer prophylactic antibiotics have also resulted in adverse events.

**Types of communication failure associated with doctors: illustrative examples and notes**

| Type of Failure | Definition | Illustrative example and analytical note (*in italics*) |
|---|---|---|
| **Occasion** | Problems in the situation or context of the communication event | The staff surgeon asks the anaesthesiologist whether antibiotics have been administered. At this point, the procedure has been under way for over an hour. *Since antibiotics are optimally given within 30 minutes of incision, the timing of this enquiry is ineffective both as a prompt and as a safety redundancy measure.* |
| **Content** | Insufficiency or inaccuracy apparent in the information being transferred | As they are preparing for the procedure, the anaesthesia fellow asks the staff surgeon if an ICU bed has been reserved for the patient. The staff surgeon replies that the "bed is probably not needed, and there is not likely one available anyway, so we'll just go ahead". *Relevant information is missing and questions are left unresolved: has an ICU bed been requested, and what will the plan be if the patient does need critical care and an ICU bed is not available? (Note: his example was classified as both a content and a purpose failure.)* |
| **Audience** | Gaps in the composition of the group engaged in the communication | The nurses and the anaesthesiologist discuss how the patient should be positioned for surgery without the participation of a surgical representative. *Surgeons have particular positioning needs, so they should be participants in this discussion. Decisions made in the absence of the surgeon may lead to the need for repositioning.* |
| **Purpose** | Communication events in which purpose is unclear, not achieved or inappropriate | During a living donor liver resection, two nurses discuss whether ice is needed in the basin they are preparing for the liver. Neither knows. No further discussion ensues. *The purpose of this communication–to find out whether ice is required–is not achieved. No plan to achieve it is articulated.* |

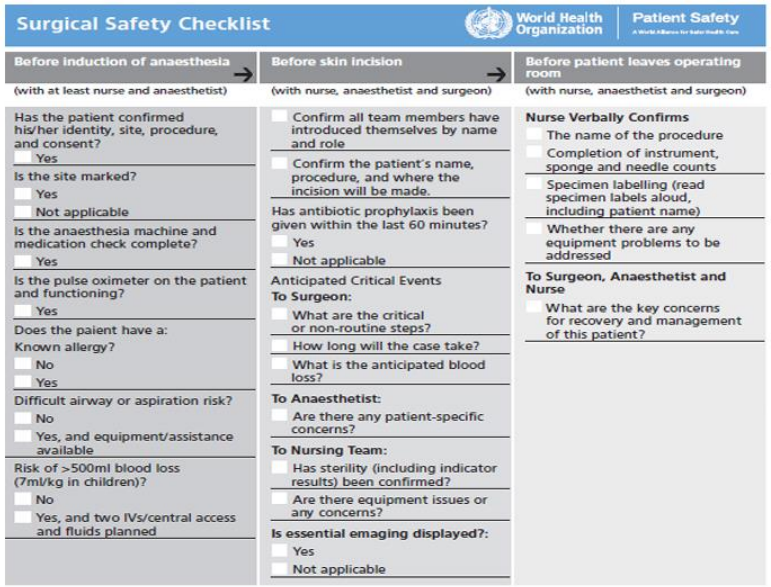
Source: Lingard L et al. Communication failures in the operating room: an observational classification of recurrent types and effects. *Quality & Safety in Health Care*, 2004 [7].

- **The *WHO Guidelines for Safe Surgery*:** provide evidence for the essential components of safe surgical care, which form the basis of the Checklist.
- **WHO Surgical Safety Checklist** is a simple, practical tool that any surgical team in the world can use to ensure that the preoperative, intraoperative and postoperative steps that have been shown to benefit patients are undertaken in a timely and efficient way.
- Standard routine **framework** of safety checks: preoperative patient evaluation, surgical intervention and preparation for appropriate postoperative care.
- The **aim** of the WHO Surgical Safety Checklist is not to prescribe a single approach, but to ensure that key safety elements are incorporated into the operating room routine.



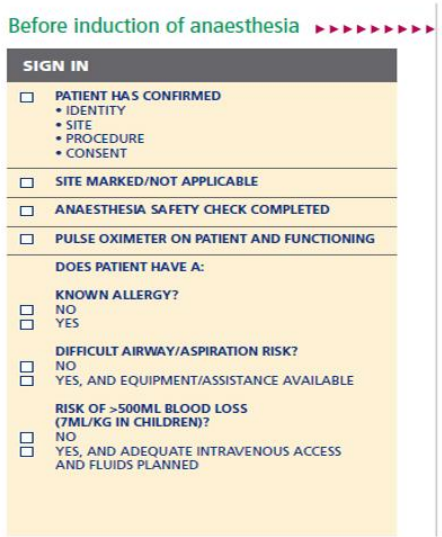
postoperative care.

- The **aim** of the WHO Surgical Safety Checklist is not to prescribe a single approach, but to ensure that key safety elements are incorporated into the operating room routine.



**Surgical Safety Checklist** — World Health Organization | Patient Safety

| Before induction of anaesthesia → (with at least nurse and anaesthetist) | Before skin incision → (with nurse, anaesthetist and surgeon) | Before patient leaves operating room (with nurse, anaesthetist and surgeon) |
|---|---|---|
| Has the patient confirmed his/her identity, site, procedure, and consent?<br>☐ Yes | ☐ Confirm all team members have introduced themselves by name and role | **Nurse Verbally Confirms**<br>☐ The name of the procedure |
| Is the site marked?<br>☐ Yes<br>☐ Not applicable | ☐ Confirm the patient's name, procedure, and where the incision will be made. | ☐ Completion of instrument, sponge and needle counts |
| Is the anaesthesia machine and medication check complete?<br>☐ Yes | Has antibiotic prophylaxis been given within the last 60 minutes?<br>☐ Yes<br>☐ Not applicable | ☐ Specimen labelling (read specimen labels aloud, including patient name) |
| Is the pulse oximeter on the patient and functioning?<br>☐ Yes | Anticipated Critical Events<br>**To Surgeon:** | ☐ Whether there are any equipment problems to be addressed |
| Does the paient have a:<br>Known allergy?<br>☐ No<br>☐ Yes | ☐ What are the critical or non-routine steps?<br>☐ How long will the case take?<br>☐ What is the anticipated blood loss? | **To Surgeon, Anaesthetist and Nurse**<br>☐ What are the key concerns for recovery and management of this patient? |
| Difficult airway or aspiration risk?<br>☐ No<br>☐ Yes, and equipment/assistance available | **To Anaesthetist:**<br>☐ Are there any patient-specific concerns? | |
| Risk of >500ml blood loss (7ml/kg in children)?<br>☐ No<br>☐ Yes, and two IVs/central access and fluids planned | **To Nursing Team:**<br>☐ Has sterility (including indicator results) been confirmed?<br>☐ Are there equipment issues or any concerns? | |
| | **Is essential emaging displayed?:**<br>☐ Yes<br>☐ Not applicable | |



Before induction of anaesthesia ▸▸▸▸▸▸▸▸▸

**SIGN IN**

- ☐ **PATIENT HAS CONFIRMED**
  - IDENTITY
  - SITE
  - PROCEDURE
  - CONSENT
- ☐ **SITE MARKED/NOT APPLICABLE**
- ☐ **ANAESTHESIA SAFETY CHECK COMPLETED**
- ☐ **PULSE OXIMETER ON PATIENT AND FUNCTIONING**

**DOES PATIENT HAVE A:**

**KNOWN ALLERGY?**
- ☐ NO
- ☐ YES

**DIFFICULT AIRWAY/ASPIRATION RISK?**
- ☐ NO
- ☐ YES, AND EQUIPMENT/ASSISTANCE AVAILABLE

**RISK OF >500ML BLOOD LOSS (7ML/KG IN CHILDREN)?**
- ☐ NO
- ☐ YES, AND ADEQUATE INTRAVENOUS ACCESS AND FLUIDS PLANNED

KNOWN ALLERGY?
- ☐ NO
- ☐ YES

DIFFICULT AIRWAY/ASPIRATION RISK?
- ☐ NO
- ☐ YES, AND EQUIPMENT/ASSISTANCE AVAILABLE

RISK OF >500ML BLOOD LOSS (7ML/KG IN CHILDREN)?
- ☐ NO
- ☐ YES, AND ADEQUATE INTRAVENOUS ACCESS AND FLUIDS PLANNED

## SAFETY CHECKLIST (FIRST EDITION)

### Before skin incision

**TIME OUT**

- ☐ CONFIRM ALL TEAM MEMBERS HAVE INTRODUCED THEMSELVES BY NAME AND ROLE
- ☐ SURGEON, ANAESTHESIA PROFESSIONAL AND NURSE VERBALLY CONFIRM
  - PATIENT
  - SITE
  - PROCEDURE

ANTICIPATED CRITICAL EVENTS

- ☐ SURGEON REVIEWS: WHAT ARE THE CRITICAL OR UNEXPECTED STEPS, OPERATIVE DURATION, ANTICIPATED BLOOD LOSS?
- ☐ ANAESTHESIA TEAM REVIEWS: ARE THERE ANY PATIENT-SPECIFIC CONCERNS?
- ☐ NURSING TEAM REVIEWS: HAS STERILITY (INCLUDING INDICATOR RESULTS) BEEN CONFIRMED? ARE THERE EQUIPMENT ISSUES OR ANY CONCERNS?

HAS ANTIBIOTIC PROPHYLAXIS BEEN GIVEN WITHIN THE IN LAST 60 MINUTES?
- ☐ YES
- ☐ NOT APPLICABLE

IS ESSENTIAL IMAGING DISPLAYED?
- ☐ YES
- ☐ NOT APPLICABLE

### Before patient leaves operating room

**SIGN OUT**

NURSE VERBALLY CONFIRMS WITH THE TEAM:

- ☐ THE NAME OF THE PROCEDURE RECORDED
- ☐ THAT INSTRUMENT, SPONGE AND NEEDLE COUNTS ARE CORRECT (OR NOT APPLICABLE)
- ☐ HOW THE SPECIMEN IS LABELLED (INCLUDING PATIENT NAME)
- ☐ WHETHER THERE ARE ANY EQUIPMENT PROBLEMS TO BE ADDRESSED
- ☐ SURGEON, ANAESTHESIA PROFESSIONAL AND NURSE REVIEW THE KEY CONCERNS FOR RECOVERY AND MANAGEMENT OF THIS PATIENT

MODIFICATIONS TO FIT LOCAL PRACTICE ARE ENCOURAGED.

**VIDEO: Examples of how to use and not to use the checklist**

https://www.youtube.com/watch?v=CsNpfMldtyk

https://www.youtube.com/watch?v=DOGJMOMHDJk&version=3

# A STUDY OF ABDOMINAL GOSSYPIBOMA

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## ABSTRACT

### BACKGROUND

Gossypiboma or textiloma is a term specifically coined to describe a retained surgical sponge in the body after a surgical procedure. Any foreign body accidentally left in the abdomen often requires reoperation for its removal which increases the morbidity of the patient, cost of treatment and medico legal problems. The aim of this research is to study the incidence, presenting features, management and outcome of Abdominal Gossypiboma. Design: Retrospective study. Setting & Duration: Department of Surgery, Sri Aurobindo Medical College & PG Institute, Indore, from 2005 to 2015. Patients: Patients presenting with a history of previous surgery, signs of an abdominal lump or acute abdomen, which turned out to be a Gossypiboma either in radiological investigations or during surgery were included in the study.

### METHODOLOGY

The data of patients who underwent Laparotomy in last 10 years was collected from Medical Records Department and the cases of Abdominal Gossypiboma were selected. All the patients were clinically evaluated and radiological examinations of patients were done to confirm diagnosis. Every patient was optimized and subjected to Laparotomy.

### RESULTS

A total of 6889 laparotomy operations were performed during this period, which translate incidence of Abdominal Gossypiboma to be one in 574 operations. A total number of 12 patients of Gossypibomas were studied, which presented with signs and symptoms of an abdominal mass with or without signs of acute abdomen. X-ray findings were foreign body with whorl appearance and gas bubbles. Ultrasound revealed hypo-echoic densities with encapsulation. Exploratory laparotomy was done in all the 12 cases.

| Case No. | Age/ Sex | Name of Previous Operation | Indication of Previous Operation | Previous Operation [Emergency/ Routine] | Duration between Previous Operation and Onset of Current Symptoms (In Months) | Clinical Presentation |
|---|---|---|---|---|---|---|
| 1 | 26 y/M | Laparotomy | Perforation Peritonitis | Emergency | 96 | Perforation Peritonitis |
| 2 | 30 y/F | Splenectomy | Tropical Splenomegaly | Routine | 8 | Perforation Peritonitis |
| 3 | 42 y/F | Cholecystectomy | Symptomatic Cholelithiasis | Routine | 28 | Perforation Peritonitis |
| 4 | 46 y/M | Laparotomy | Perforation Peritonitis | Emergency | 60 | Intestinal Obstruction |
| 5 | 55 y/F | Laparotomy | Intestinal Obstruction | Emergency | 72 | Intestinal Obstruction |
| 6 | 25 y/F | Splenectomy | Idiopathic Thrombocytopenic Purpura | Routine | 54 | Intestinal Obstruction |
| 7 | 60 y/F | Abdominal Hysterectomy | Uterine Fibroid | Routine | 96 | Intestinal Obstruction |
| 8 | 45 y/F | Cholecystectomy | Chronic Cholecystitis | Routine | 44 | Abdominal Lump |
| 9 | 28 y/M | Appendicectomy | Perforated Appendicitis | Emergency | 84 | Abdominal Lump |
| 10 | 62 y/M | Ureterolithotomy | Right Ureteric Calculus | Routine | 76 | Abdominal Lump |
| 11 | 30 y/F | Splenectomy | Hypersplenism with Massive Splenomegaly | Routine | 12 | Abdominal Lump |
| 12 | 31 y/F | Caesarean Section | Abruptio Placenta | Emergency | 66 | Abdominal Lump |

***Table 1: Table showing Details of Previous Surgery and Clinical Presentation of Gossypiboma***

While in Case No. 3, the sponge was forming an inseparable was fashioned. There was no mortality in our study.

| Case No. | Case Diagnosis | Operation Done | Intra-Operative Findings | Post-Operative Complications |
|---|---|---|---|---|
| 1. | Perforation Peritonitis | Exploratory Laparotomy | Sponge Causing Gastric Perforation | Wound Seroma |
| 2. | Perforation Peritonitis | Exploratory Laparotomy | Sponge Eroding Transverse Colon | Burst Abdomen and Re-Exploration |
| 3. | Perforation Peritonitis | Exploratory Laparotomy | Sponge Forming Inseparable Cocoon with Small Bowel Loops | Wound Pus Discharge |
| 4. | Intestinal Obstruction | Exploratory Laparotomy | Sponge Adhered to Distal Ileum and Caecum | Prolonged Ileus |
| 5. | Intestinal Obstruction | Exploratory Laparotomy | Sponge Adhered to Ileal Loops | Wound Seroma |
| 6. | Intestinal Obstruction | Exploratory Laparotomy | Sponge Adhered to Jejunal Loops | Wound Pus Discharge |
| 7. | Intestinal Obstruction | Exploratory Laparotomy | Sponge Adhered to Ileal Loops and Sigmoid Colon | Prolonged Ileus and Wound Seroma |
| 8. | Abdominal Lump | Exploratory Laparotomy | Sponge Densely Adherent to Anterior Abdominal Wall, Small Bowel Loops & Left Adnexa | None |
| 9. | Abdominal Lump | Exploratory Laparotomy | Sponge in Right Paracolic Gutter with Flimsy Adhesions to Small Bowel Loops | None |
| 10. | Abdominal Lump | Exploratory Laparotomy | Sponge Lying in Pelvis and Adherent to Surrounding Structures | None |
| 11 | Abdominal Lump | Exploratory Laparotomy | Sponge in Splenic Fossa and Adherent to Parieties | None |
| 12. | Abdominal Lump | Exploratory Laparotomy | Sponge Adhered to Uterus and Right Adnexa | None |

***Table 2: Table Showing Intraoperative Findings and Post-Operative Complications after Gossypiboma Surgery***

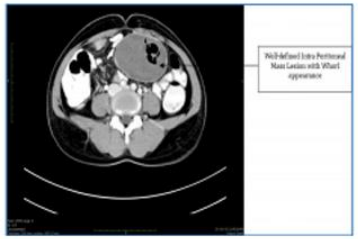


*Fig. 2: CT Scan Coronal View of a Patient of Gossypiboma [Case 8]*

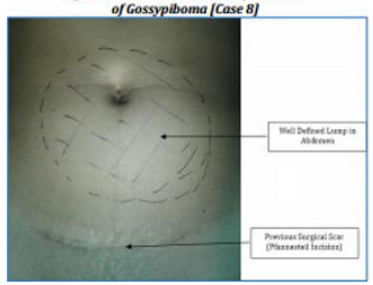


*Fig. 3: Photograph of a Patient showing Abdominal Lump and Scar of Previous Surgery [Case 7]*


*Fig. 4: Intraoperative Photograph showing Gossypiboma Adhered to Adnexa [Case 12]*


*Fig. 5: Intraoperative Photograph showing Gossypiboma Adhered to Small Bowel Loops [Case 5]*


*Fig. 6: Intraoperative Photograph showing Gossypiboma Adhered to Transverse Mesocolon and Adjacent Structures [Case 2]*

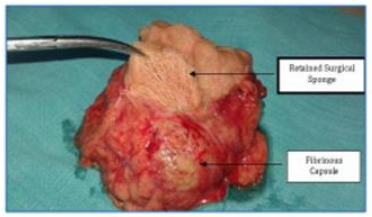


*Fig. 7: Photograph of Specimen showing Retained Sponge Inside a Fibrinous Capsule [Case 10]*

**CONCLUSION**

Gossypiboma is a rare, avoidable, but serious postoperative complication. It is usually asymptomatic and generally has nonspecific clinical findings. Hence, the diagnosis is often delayed. Abdominal Gossypiboma can cause wide variety of complications like perforation of viscera and adhesion to the adjacent structures. It can also be a cause for serious medico-legal problems. It is best to avoid gossypiboma. The surgeons should comply with the current recommendations on the prevention of retained foreign bodies including use of radiological markers and routine pre- and post-operative sponge count. Gossypiboma should be included in the differential diagnosis of soft-tissue masses or localized abdominal pains in patients with a history of prior operation.

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သေကံမရောက် အသက်မပျောက်ခဲ့သည့်
ဦးကြည်ဆန်း.. ဖိုက်ထဲကို အခဲဒါကြီးရောက်ေ
နတာတဲ့..

# Safe Surgical Care
# in
# Our Daily Practice
# (1000 beded Nay Pyi Taw General Hospital)


Elective OT ဝင်မည့် Pt's များ
1. ရေပတ် သေချာတိုက်ခိုင်းရန် (ဥပမာ. ဂျီင်း၊ ပေါင်ဖြဲ၊ oral mouth care များလုပ်ခိုင်းခဲ့ရန်)
2. အမျိုးသားလူနာများ နုတ်ဆံမဲ့ဖွေး၊ ရင်ဘတ်မွေးရိတ်ခဲ့ရန်
3. Major case များ cannular အစိမ်း၊ Bloodset နဲ့ N/S Drip များတင်ခဲ့ရန်
4. အမျိုးသမီးလူနာများ လက်သည်းနှီ / ခြေသည်းနှီ ဖျက်ခဲ့ရန် လက်သည်းရှည်၊ခြေသည်းရှည်များ ဖျက်ခဲ့ရန်၊ လက်ဝတ်ရတနာ များချွတ်ခိုင်းရန်
5. Pt's တိုင်း၏ လည်ပင်း၊ လက်တွင်ရှိသော လက်ခွဲကြိုးများဖြုတ်ခဲ့ရန်
6. Breast case များခွဲမည့်ဖက်တွင် cannular
7. ခွဲမည့် operation ပေါ်မူတည်ပြီး procedu
urine Bag ,Catheter
8. ခွဲမည့်နေရာနဲ့ပတ်ဝန်းကျင်တွင် shav
9. Surgical
10. အမျိုးသမီးလူနာများ ဆံပင်၊ ဆံထုံး မထုံး
ခွဲပြီးထုတ်ပေးပါရန်)
11. SSG လုပ်မည့် case
12. Cap + Mask
Em; patient များအား
၁။ Injury နှင့်လာသော Pt's များအား တတ်နိုင်သလောက် သွေးများရှိများ၊ ရေပတ်သေချာတိုက်ခိုင်းရန်။
၂။ OT Gowns များကို Ward ထဲမှ တစ်ခါတည်းလဲခဲ့ရန်။
၃။ Case ခေါ်လျှင် Imformation သေချာနားထောင်ပြီး မရှင်းလင်းကာ သေချာမေးပြီးမှ Case ပို့ရန်။
၄။ Positive case များအား ပလပ်စတစ်အခင်းနှင့် Disposable Drape များ Growns များအား ထည့်ပေးလိုက်ရန်။
၅။ Em; case တိုင်း canular အစိမ်းထိုးရန် Drip ကို Blood Set နဲ့တင်ရန်။
၆။ ခြေသည်း /လက်သည်း အရောင်များ ဖျက်ခဲ့ရန်။
၇။ လက်ဝတ်ရတနာများ လက်ဖွဲ့ကြိုးများဖြုတ်
၈။ Ryle's Tube ပါသော Pt's များ ရေသန့်ပူ
လိုက်ပါနှင့်။ အိတ်(သို့) urine Bag နဲ့ တပ်ခဲ့ရန်
၉။ Injury မရသော၊ Blood Loss မရနိုင်သော
Drip set နဲ့ ပို့နိုင်သည်။
၁၀။ Abscess case များ wound debridement လု
Eusol, Hydrogen peroxide ထည့်ပေးလိုက်ရန်။
၁၁။ Cap & Mask များ ထည့်ပေးလိုက်ရန်။
၁၂။ Amputation case ရှိလျှင် Saw ပေါင်းခဲ့ရန်။

# Conclusions

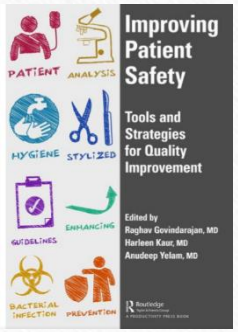
- A common theme in cases of wrong-site surgery involves failed communication between the surgeons, the other members of the health care team, and the patient
- Communication is crucial throughout the surgical process, particularly during the preoperative assessment of the patient and the procedures used to verify the operative site
- Effective preoperative patient assessment includes a review of the medical record or imaging studies immediately before starting surgery
- To facilitate this step, all relevant information sources, verified by a predetermined checklist, should be available in the operating room and rechecked by the entire surgical team before the operation begins

# Conclusions ( Contd )


- A briefing is importat for assigning essential roles and establishing expectations
- Introduction of each person in the operating room by name and role, even if team members are familiar, is recommended for improved communication
- Whenever possible, the patient ( or the patient's designee ) should be involved in the process of identifying the correct surgical site, both during the informed consent process and in the physical act of marking the intended surgical site in the preoperative area


# Conclusions ( Contd )

- A formal procedure for final confirmation of the correct patient and surgical site ( time out ) that requires the participation of all members of the surgical team may be helpful
- Time outs may include not only verification of the patient and the surgical site, but also relevant medical history, allergies administration of appropriate preoperative antibiotics, and deep vein thrombosis prophylaxis




# Conclusions ( Contd )

- Use of the checklist involved both changes in systems and changes in the behavior of individual surgical teams
- To implement the checklist, all sites had to introduce a formal pause in care during surgery for preoperative team practices that have previously been shown to be associated with improved safety processes and attitudes and with a rate of complications and death reduced by as much as 80 %
- The philosophy of ensuring the correct identity of the patient and site through preoperative site marking, oral confirmation in the operating room, and other measures proved to be new to most of the study hospitals

## Take Home Message

EVERY CHECK CAN SAVE LIFE