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PERI-OPERATIVE THEATRE SAFETY PRECAUTIONS



2

GENERAL OBJECTIVES

1. Plan and prepare for Operation Theatre safety
2. Verify perioperative Theatre checklist
3. Care for patient and theatre team
4. Handle instruments, apparatus and consumables
5. Respond to perioperative Theatre alarms
6. Evaluate, wind-up Operation Theatre safety

3 **PLAN AND PREPARE FOR OPERATION THEATRE SAFETY**

- This learning outcome specifies the content of competencies required to plan for Execution of Perioperative Theatre Safety Precautions. It includes Operation Theatre protective gears, Use of perioperative Theatre protective gears, perioperative Theatre safety precautions, Occupation health and safety in perioperative Theatre and Perioperative Theatre Practice.

4

DEFINITION OF TERMS

- **Protective gears-** Types of equipment that is worn to increase an individual's safety while performing potentially hazardous tasks[gloves, gowns ,masks .
- **Theatre Safety precautions-** Measures taken or observed in theatre to ensure that something with potential risk is safe
- **Laser (Light Amplification by the Stimulated Emission of Radiation) surgery-** use of special light beams in surgery instead of instruments for making incisions on tissue
- **Volatile-** something, such as a gas or liquid, that easily evaporates in normal temperature.
- **Electrosurgery (diathermy)-** use of electricity in surgery to cut or coagulate tissues
- **safety** ; the condition of being protected from or unlikely to cause danger, risk, or injury

5

OPERATION THEATRE PROTECTIVE GEARS

- These are clothing or equipment that protects the wearer from direct contact with hazardous chemicals or potentially infectious body fluids. They may be worn for purposes of self protection or to prevent cross-infection in theatre. They include: disposable surgical caps, scrub trousers and tops, jackets, disposable shoe, surgical shoes; surgical masks, gowns, gloves, masks, aprons and eye protection.

6

- institution policies, national health guidelines and the World Health organization (WHO) recommendations determine the type of protective gear to be worn in the operation theatre. The type of gear to be worn may vary from one surgical procedure to the other depending on the risk of exposure to body fluids and respiratory droplets. All surgical practitioners in the operation theatre should take full responsibility over self and others in order to ensure surgical attire compliance.

7 USE OF PERIOPERATIVE THEATRE PROTECTIVE GEARS

- **Clothing and Covering for clothing**

- These serve as part of contact precautions based on Infection prevention and control (IPC) principles. **Surgical scrubs** should be worn as regular on-duty uniform in the operation theatre. Fluid-resistant **aprons or gowns** should be worn on top to reduce the likelihood of infected body fluids penetrating and contaminating the underlying clothes where splashing of blood or fluids is anticipated.

- **Footwear**

- Floors and surfaces may be contaminated with faeces and body fluids. Foot wear also provides optimal protection when floors are wet and rubber boots can protect against sharps injuries. Foot wear includes boots, closed shoes that fully cover the dorsum of the foot without laces, clogs. Shoe covers, preferably impermeable, should ideally be used over closed shoes to facilitate decontamination in procedures with body fluid splashes

8

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- **Head cover**
 - It protects the skin and hair of the head and neck from contamination and the possibility of subsequent cross-infection. Hair and hair extensions need to fit inside the head cover. Single-use head covers are preferred.
 - **Mucous membrane protection**
 - Mucous membranes include the eyes, mouth and nose. **Face shield, goggles and face masks** should be used to completely cover them as an integral part of standard and droplet precautions (IPC measures that aim to prevent infection with pathogens that can be transmitted by large-particle droplets).
 - Face shields and goggles should not be used together, as this does not offer additional protection and causes more discomfort and fogging affecting vision.
 - **Goggles:** Good seal with the skin of the face to protect the eyes from fluid splashes and infectious droplets.

PPE Kit Supplies

9



Gloves



3 Ply Mask



Coverall



Head Cap



Shoe Cover



Goggles



10

CONT.....

- **Face shield:** Made of clear plastic and completely covers the sides and length of the face. It protects the eyes, nose and mouth's mucous membranes.
- **Surgical mask:** It protects the nasal and oral mucosa from splashes and droplets of infectious material.
- **Gloves**
 - They prevent self and cross infection; and reduce risk from needle-stick injuries. Sterile Surgical Gloves or High Level Disinfected Surgical Gloves should be worn during all procedures in which the main aim is to avoid introduction of pathogens into the patient. Single use examination gloves/ clean gloves should be worn for all procedures in which one will be in contact with intact mucous membranes and where the primary purpose of wearing gloves is to reduce the risk of being exposed to blood or other body fluids. The best IPC practice dictates that gloves should be changed between patients

11

PERIOPERATIVE THEATER SAFETY PRECAUTIONS

- Protecting patients from injury is one of the major roles of the perioperative theatre technicians.
- The following are recommended practices for patient safety goals by the Joint Commission:-

12

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- Improve the accuracy of patient identification
 - Improve effectiveness of communication among caregivers
 - Improve safety of using medications
 - Reduce the risk of health care–associated infections
 - Accurately and completely reconcile medications across continuum of care
 - Reduce the risk of patient harm resulting from falls
 - Reduce the risk of influenza and pneumococcal disease in institutionalized older adults
 - Reduce the risk of surgical fires

13

- Implement applicable National Patient Safety Goals and associated requirements by components and practitioner sites
- Encourage patients' active involvement in their own care as a patient safety strategy
- Prevent health care–associated pressure ulcers (decubitus ulcers)
- Identify safety risks inherent in the organization's patient population
- Improve recognition and response to changes in a patient's condition
- **NOTE** A perioperative theatre technologist has the responsibility of ensuring that the above goals are met, either directly or indirectly through collaboration with other health care members in order to maintain patient safety

14

OCCUPATIONAL SAFETY AND HEALTH

- **Occupational safety and health** is identified as the discipline dealing with the prevention of work-related injuries and diseases as well as the protection and promotion of the health of workers. It aims at the improvement of working conditions and environment
- **Occupational health problems** are injuries, illnesses, and accidents occurring at work. Occupational health programs help eliminate or reduce these problems by identifying four types of workplace hazards. These are physical, ergonomic, chemical, and biological hazard

15

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- During an operation health and safety procedures affect all those present including: the patient; the surgeon and the surgeon's assistants; the anaesthetist; nursing staff and theatre practitioners; health care assistants; students etc

16 THE FOLLOWING ARE HEALTH AND SAFETY ISSUES SPECIFIC TO THEATRES:-

- Special consideration must be given to patients under general anaesthetic, as they are unable to take care of their own safety needs or voice any concerns.
- Pressure area care is a fundamental skill in the operation theatre because immobility which could be resulting from factors such as use of anesthetic agents or tissue incisions pose an additional risk factor to this.
- Staff must ensure that visitors to theatres receive instruction in health and safety procedures.
- To ensure efficient and safe running of the theatre list, it should be managed by a designated person, usually the most senior. There should be sufficient staff on duty, and they should all have a clear understanding of their role in the team, based on their skills and abilities

17

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- All equipment should be tested before it is needed, and care should be taken with electrical equipment so that cables do not present a trip hazard or run across areas where there is a risk of fluids pooling. The heating should be set at a level that is safe and comfortable for patients and staff
 - A meticulous theatre-cleaning regime is fundamental to preventing infection. Theatres should be clean and dust free, ventilation systems must be in working order and doors must be kept closed.
 - The theatre floor should be cleaned thoroughly every day, and floors and surfaces should be damp-dusted between operations, ensuring any spillage of blood or body fluids is removed . A cleaning agent of proven activity should be used, cloths should be disposable and mop heads should be sterilised daily



18

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- Although wearing gloves does not prevent accidental needlestick injuries, the DoH (1998b) suggests that they help reduce the volume of blood to which the wearer is exposed. Clean gloves should be put on by circulating staff before touching patients or any equipment, specimens, or drapes that could be contaminated

19 RESPONSIBILITY OF A THEATRE TECHNOLOGIST IN ENSURING OCCUPATION HEALTH SAFETY

- Ensure their own safety and health and that of persons who may be affected by their act of commission or omission.
- Cooperate with the employer and co-workers in their workplace to ach safe and healthy work environment by following OSH policy guidelines and standard operating procedures
- Make themselves familiar with the OSH policy guidelines
- Use PPE as provided by employer to prevent risk to his/her safety and health
- Comply with safety and health Standard Operating Procedures (SOPs)
- Report to the supervisor of possible hazards

20

- Report to supervisor on any accidents, injuries, or near misses that arise in the work place by completing the appropriate form.
- If an urgent action is required, the situation must be reported and information forwarded to the appropriate department as soon as possible (24 hours). Report any serious and fatal accidents within 8 hours.
- Facilitate the performance of duties given by the employer
- Inform the supervisor of any personal condition that may increase vulnerability of occupational hazards

21

SAFETY IN USE OF SPECIALIZED EQUIPMENT

- **DIATHERMY[ELECTRO SURGICAL UNIT] MACHINE:**
- diathermy is a surgical technique which uses heat from an electric current to cut tissue or seal bleeding vessels [cutting and coagulation].
Diathermy emissions can contain numerous toxic gases, particles and vapours and are usually invisible to the naked eye

22

PARTS OF ADIATHERMY MACHINE

- An electrosurgical unit (ESU) consists of a generator and a handpiece with one or more electrodes. The device is controlled using a switch on the handpiece or a foot switch. Electrosurgical generators can produce a variety of electrical waveforms. As these waveforms change, so do the corresponding tissue effects
- [the generator, the handpiece, the cables, the electrode, and the dispersive pad/return electrode.]
- **Where should diathermy pads be placed on the body?**
- Choose a location for the return electrode/dispersive pad that is as close to the operative site as possible, clean and dry, well vascularised, and over a large muscle mass. Avoid bony prominences, adipose tissue, scar tissue, skin over implanted metal prostheses, hairy surfaces, and pressure points

23

- The patient's skin should be evaluated before and after diathermy use.
- The patient should not be in contact with grounded metal objects as the provision of an alternative pathway for the electrical current could result in a burn
- Any metal parts of the operating table that could come into contact with the patient should therefore be padded and jewellery and piercings should be removed before arrival in theatre.
- The return electrode should be placed over a vascular, muscular area to promote electrical conductivity[ability to carry electric current] and to dissipate heat [transfer].
- Shaving may be necessary as hair at the dispersive site prevents complete plate contact with skin.
- *The plate should not be placed over bony prominences (this can impede return current), over implanted prostheses (there is a potential for overheating), over scar tissue or over areas distal to tourniquets where adequate tissue perfusion cannot be guaranteed.*

24

LASER SURGERY

- Laser surgery is a type of surgery that uses special light beams instead of instruments for surgical procedures. LASER stands for "Light Amplification by the Stimulated Emission of Radiation." Lasers were first developed in 1960.
- Newer laser modifications continue to have a large impact on medical and surgical practices. A large part of their impact has been seen in the treatment of various skin lesion and diseases.
- **What types of surgeries use lasers?**
- There are many indications for the use of lasers in surgery. The following are some of the more common indications:
 - To remove tumors [treat bladder and upper urinary tract urothelial tumors.]
 - To help prevent blood loss by sealing small blood vessels
 - To seal lymph vessels to help decrease swelling and decrease the spread of tumor cells
 - To treat some skin conditions, including to remove or improve warts, moles, tattoos, birthmarks, scars, and wrinkles

25

- SAFETY PRECAUTION;
- When lasers are in use theatre staff should wear eye protection, doors should be locked and windows covered to protect those outside the theatre
- Utilize Proper Storage. ...
- Follow Standards and Regulations. ...
- Work With Trained Personnel. ...
- Use Warning Signs.

26

XRAYS

- In accordance with the Ionizing Radiation Regulations 1999, staff who work with ionising radiation should limit exposure to no more than is reasonably necessary, and should exercise reasonable care while carrying out such work.
- Every employee who works with ionizing radiation should make full and proper use of the protective equipment provided.
- The number of people present in theatre should be limited to those necessary for the procedure and those present must wear lead aprons.
- It is advisable for pregnant women to avoid X-rays because radiation may cause fetal abnormalities (Smith, 2000).



27

- Types of x rays machines
- General Radiography.
- Portable X-ray Machines.
- Fluoroscopy Systems.
- C-arm Systems.
- Digital Radiography (DR)

28

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- **What are the types of x-rays?**
 - plain radiography, or plain x-ray.
 - computed tomography, known as CT scanning.
 - fluoroscopy — which produces moving images of an organ.
 - mammography — an x-ray of the breasts.
 - angiography — an x-ray of the blood vessels

29

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- the 4 different types of scans
 - **X-rays, a CT scan, an MRI scan and ultrasound scans.**
 - Angiography. Information on angiograms, a type of X-ray used to examine blood vessels.
 - CT scan. Learn about CT scans and when they're used.
 - Echocardiogram. ...
 - Electrocardiogram (ECG) ...
 - MRI scan. ...
 - PET scan. ...
 - Ultrasound scan. ...
 - X-ray.

30

HAZARDS FROM VOLATILE LIQUIDS OR GASES

Avoid the use of flammable solutions with diathermy as there is the risk of ignition.

- Anyone affected should leave the theatre immediately.
- Soft contact lenses should be removed when methyl methacrylate is being mixed as they are permeable to irritant vapours.
- Gas cylinders used in theatre must be clearly labelled with the name or chemical symbol of the gas on the shoulder of the cylinder and the valve.
- They should be stored in a cool, well-ventilated room, free from flammable materials. No lubricant of any description should be used on the cylinder valves

31

COLOUR CODING OF CYLINDERS IN O.T

GAS	U.S	ISO:
CO2	GREY	GREY
MEDICAL AIR	YELLOW	BLACK/WHITE
NITROGEN	BLACK	BLACK
NITROUS OXIDE	BLUE	BLUE
OXYGEN	GREEN	WHITE
VACCUM[SUNCTION]	WHITE	YELLOW

32

ANAESTHETIC MACHINE

- currently the most frequent type in use is the continuous-flow anaesthetic machine or "Boyle's machine", which is designed to provide an accurate supply of medical gases mixed with an accurate concentration of anaesthetic vapour, and to deliver this continuously to the patient at a safe pressure and flow.
- **The machine performs four essential functions:**
- Provides O₂,
- Accurately mixes anaesthetic gases and vapours,
- Enables patient ventilation and.
- Minimises anaesthesia related risks to patients and staff.

33

- The modern anesthesia workstation is an integrated unit consisting of the following components: Basic components of anesthesia machine unit (including gas delivery, electronic flowmeters, vapourizers, breathing circuit, scavenging system, CO₂ absorber, bellows assembly, system switch, O₂ flush button, display monitor, pressure gauges,)
- NOTE read and familiarize your selves with types of anaesthesia and type of drugs used;

34

SAFETY PRECAUTIONS BEFORE USING THE MACHINE

- **Verify that the auxiliary oxygen cylinder and self-inflating manual ventilation device are available and functioning[ambu bag]**
- **2. Verify whether patient suction is adequate to clear a patient airway[strong vaccum]**
- **3. Turn on the anesthesia delivery system and confirm that AC power is available.***
- **4. Verify availability of required monitors and check the alarms.**
- **5. Verify that pressure is adequate on the spare oxygen cylinder mounted on the anesthesia machine.***

35

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- 6. Verify that piped gas pressures are equal to or greater than 50 psig
 - 7. Verify that vaporizers are adequately filled, and if applicable, that filler ports are tightly closed[halothane/isoflurane/sevoflurane]
 - 8. Verify that there are no leaks in the gas supply lines between the flowmeters and the common gas outlet
 - 9. Test scavenging system function.*
 - 10. Calibrate, or verify the calibration, of the oxygen monitor and check the low oxygen alarm.

36

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- 11. Verify that carbon dioxide absorbent is not exhausted[sodalime]
 - Purple-white
 - 12. Perform breathing system pressure and leak testing
 - 13. Verify that gas flows properly through breathing circuit during both inspiration and exhalation. .
 - Confirm the ventilator settings and evaluate readiness to deliver anesthesia care.
 - Document completion of checkout procedures

37 SAFETY MEASURES WHEN HANDLING THE ANAESTHESIA MACHINE

- The machine should be operated by competent personnel
- The machine should be serviced regularly by the bio med team
- The machine should be placed at the strategic place and the brakes locked
- Avoid leaning on the machine or avoid pushing it during routine cleaning of the theatre
- Regular cleaning of filters and dump dusting of the machine
- The machine should always be on stand by mode
- Always change the CO2 Absorber when it has expired
- Avoid placing too much weight on the anesthesia machine
- Ensure you check properly the colours of the vaporizers when refilling them

38

AUTOCLAVE MACHINE

- The basic principle of steam sterilization, as accomplished in an autoclave, is to expose each item to direct steam contact at the required temperature and pressure for the specified time. Thus, there are four parameters of steam sterilization: steam, pressure, temperature, and time
- The autoclaving process takes advantage of the phenomenon that the boiling point of water (or steam) increases when it is under high pressure. It is performed in a machine known as the Autoclave where high pressure is applied with a recommended temperature of 250°F (121°C) for 15-20 minutes to sterilize the equipment

39 SAFETY PRECAUTIONS WHEN USING THE AUTO CLAVE[DO'S AND DON'TS]

- Do Use PPE When Handling Autoclaves [heavy duty gloves. ...]
- Do Train Team on Use. [to prevent injury ...]
- Do Inspect Autoclave Before Use [water level. ...]
- Do Test Regularly.[for efficiency /as part of proper maintenance ...]
- Do Clean Area After Each Use.[as part of maintenance ...]
- Don't Overload Autoclave.[to allow steam to penetrate in all items ...]
- Don't Clean Flammable Items.[electric cables to avoid electrocution ..].
- Don't Open During a Cycle. [to avoid burns]

40

ASSINGMENT

in groups Read and make notes on the security features of the anaesthetic machine and prepare for a presentation[20 mks]

- Colour coding[gases/vaporizers]
- Alarms
- Gas supply
- And many others

41 LEARNING OUTCOME 2 VERIFY PERIOPERATIVE THEATRE CHECKLIST

- **Definition of terms**
- Checklist- list of required items or actions to be made before proceeding to a procedure
- Surgical safety checklist - a tool that is designed to improve the safety of surgical procedures by ensuring that key members of a surgical operation perform key safety checks during the vital phases of perioperative care

42

- According to WHO safe surgery programme, unsafe surgical care can cause substantial harm. Perioperative theatre checklists are a core component of the set standards for theatre safety. Various types of theatre checklists include the
 - WHO surgical safety checklist,
 - checklist for starting the skin preparation
 - and preoperative checklist

43

PRE OPERATIVE CHECKLIST

- The aims of pre operative assessment are to reduce the risks associated with surgery and anaesthesia, to increase the quality (thus decreasing the cost) of perioperative care, to restore the patient to the desired level of function, and to obtain the patients' informed consent for the anaesthetic procedure.

44

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- This contains critical elements that must be obtained and verified preoperatively. It is completed by the nurse, usually in the ward or outpatient department, and it accompanies a patient to the operation theatre. Hospitals and other surgical facilities have individual check-in protocols. However, specific details are always verified:
 - 1. Patient identity is meticulously checked- health care provider asks the patient his or her name and verifies this with the patient's unique identifiers, the surgery schedule, and the medical records at hand.
 - 2. Correct procedure, side, and site are validated with the patient, the medical record, the surgical schedule, and the consent form. Preoperative procedures include the surgeon's skin markings on the operative side showing the location of the incision. These are matched with all other information available.
 - 3. Surgical and anesthesia consent forms must be signed according to facility protocol.

45

CONT,,,,,,,,

- 4. Resuscitation orders and any other legal documents are checked.
- 5. Patient allergies must be noted on all medical records, and the patient is asked about allergies again in the holding area.
- 6. Preoperative medications are documented in the patient's medical and preoperative records. Any medication ordered but not yet given may be administered in the holding area as directed by the surgeon or ACP.
- 7. Prostheses, including dentures and hearing aids, must be removed before surgery whenever possible. In the event a prosthesis is removed in the holding area, extreme care is
- taken to protect it from loss or misidentification.
- 8. Jewelry, including body-piercing jewelry, is removed before anesthesia or any procedure in which electrosurgery is used. Any jewelry removed in the holding area is placed in a container, labeled, and placed in a secure location until it can be safely returned to the patient. A wedding ring may be taped in place.
- 9. Medical records accompanying the patient are noted. Diagnostic results accompanying the patient, such as radiographs or other imaging studies, are clearly labeled.

46



47

WHO SURGICAL SAFETY CHECKLIST

- WHO Surgical Checklist is intended to give surgical teams a simple and efficient set of priority checks to ensure patient safety, effective teamwork, and communication in every operation performed
- The surgical safety checklist consists of three components: sign-in, performed before the induction of anesthesia; time-out, performed before skin incision; and sign-out, performed immediately after skin closure or before the patient leaves the operating theatre

48

It consists of 5 steps:

1. Briefing.
2. Sign in.
3. Time out.
4. Sign out.
5. Debriefing. The WHO surgical safety checklist forms steps 2, 3 and 4 of the five steps

Surgical Safety Checklist

safety precautions



World Health
Organization

Patient Safety

A World Alliance for Safer Health Care

10/30/2023

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?

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

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50

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- A perioperative theatre technologist should collaborate with the nurse in check listing the patient for surgery as provided for in the scope of practice and medical legal ethics. In the operation room, the perioperative checklist that is escorting the patient to theatre should be counter-checked by the receiving personnel. Following admission in theatre, the WHO surgical safety checklist and the skin preparation checklist should be checked before the operation is started. Other checklists should be reviewed according to institutional policies

51

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- **Checklist for starting skin preparation**
 - This should be done before skin incision and it may be done by a theatre technician depending on institution policy. It includes the following:-
 - Prepare the patient.
 - Have you checked the patient's record for allergies?
 - Has the patient been positioned properly?
 - Has the surgical site been verified?
 - Has all jewelry been removed?
 - Has the anesthesia care provider given permission to start the prep?

52

- Are the surgeons present and available to start surgery?
- Prepare the supplies.
- Note which items are not included in the prep kit.
- Are sterile gloves available?
- Have the prep solutions been poured?
- Is the prep table positioned close to the patient?
- Do you have adequate light on the prep area?
- Prepare yourself.
- Do you have a plan?
- Do you know the exact boundaries of the prep area?
- Is your clothing contained so that it does not touch the prep area? (A loose warm-up jacket or baggy sleeves may drag across the prep area.)
- Is a receptacle at hand for soiled prep sponges?

53

TIMEOUT

- A time-out is the surgical team's short pause, just before incision, to confirm that they are about to perform the correct procedure on the correct body part of the correct patient

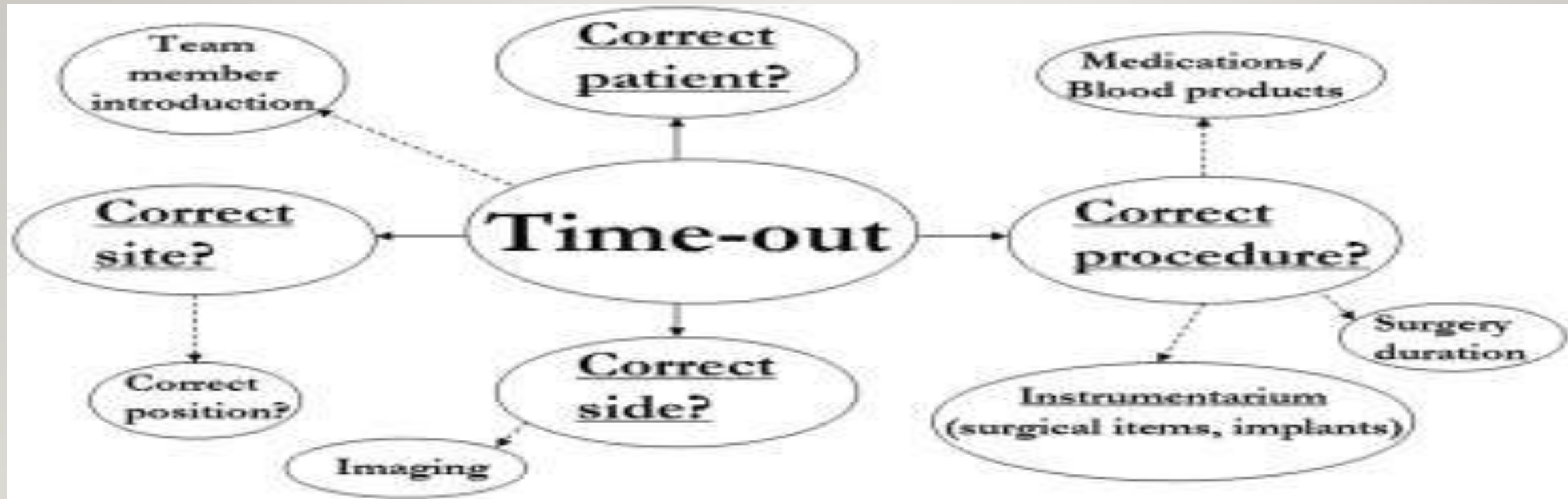
54

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- [1]. A time-out requires a marked operative site, but should also be done if no site is marked [2]. Multiple procedures performed by separate surgical teams require distinct time-outs. Surgeons working in more than one OR should always be present during the time-out [3]. Any member of the surgical team can call a time-out; however, it is usually the circulating nurse's task [4] or the surgeon's [5]. The time-out should be accompanied by a sign-in briefing, performed preoperatively, and a sign-out briefing performed after skin closure but before the patient enters the post-anesthesia care unit.

55

SKETCH OF CRITICAL EVENTS DURING TIME OUT

- NOTE this should be done verbally



56

WHAT SHOULD BE CONFIRMED ON A THEATRE SAFETY CHECKLIST DURING SIGN-IN?

- Confirm the patient identity, procedure and site to be operated
- Patient allergies
- Difficulty airway or aspiration risk
- Risk of blood loss
- Anesthesia safety completed
- Briefing all members of surgical team on care of patient or any concerns

57

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- What are the components of a safety checklist during sign out?
 - Confirm name of operative procedure
 - Instrument count
 - Specimen identified and labelled
 - Any equipment problem to be addressed

58

DOCUMENTATION IN OT

- Surgical documentation is important for several reasons. First, it provides a record of the care that was provided to the patient and ensures that patients receive the best possible care. This can be useful for quality improvement purposes or in the event of a medicolegal issue.

59

- Documentation and record keeping serves many functions in operation theatre to include fulfilling the medical-legal requirements
- ***. What details should be included in an operation register?***
- all the surgical procedures done in the operation room.
- all the information and particulars of the patient to include the patient's full name, age, sex, registration number, ward in which the patient is admitted
- full description of the surgery performed
- name of anesthesiologist
- name of the operating surgeon and assistant
- anesthetic agent used for anesthesia
- name of the scrub nurses and the OT assistant
- operation theater table on which the patient was operated
- whether the procedure was a major or minor surgery and the duration of the operation

60 ***FIVE GENERAL GUIDELINES THAT SHOULD BE FOLLOWED FOR HEALTH CARE DOCUMENTATION***

- Every document must contain the patient's unique identifiers, including patient name, hospital or identity card number, and other information required specifically for that health facility.
- The date must be accurate. Never predate or postdate a document. Always document the correct time.
- If you make an error in handwritten documentation, make a single line through the part that is incorrect and write in the correct information. Initial the change. Never use
- opaque liquids or tapes to blank out the error—it must remain in the record.
- If the documentation is performed in writing, make sure it is legible.
- Documents must be kept clean and dry to prevent smearing.

61

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- A daily operation theatre register details the infection control activities of OT.
 - What are common components of this register?
 - Name of the concerned cleaning staff on duty
 - assessment of temperature control
 - samples sent from the OT for microbiological tests
 - biomedical waste management
 - fumigation details of the OT with the name of chemical reagent used

62

TYPES OF REGISTERS IN OT

- Operation register [minor/major]
- DDA drugs register
- Specimen register
- Register for abortions and pregnancy
- Instrument register
- Linen stock register
- Microbiology report register
- Incident report register
- Ccssd register
- Temp/humid control register
- Daily activities register
- The inventory

63

TYPES OF CHARTS/MEDICAL RECORDS IN OT

- Anaesthetic chart
- In take /out put chart
- Blood transfusion chart
- Operation notes
- Informed consent
- Theatre checklist
- Nursing notes/cardex
- Treatment sheet



64 **LEARNING OUTCOME 3 CARE FOR PATIENT AND THEATRE TEAM ; OBJECTIVES**

1. Patient is identified according to procedure to be performed; IP. No, file and identification band
2. Completeness of theatre team is checked according to WHO standards
3. Patient is transferred to the operation table according to SOPs
4. Patient is positioned according to procedure to be performed
5. Positioners are strapped onto the patient as per SOPs
6. Patient is transferred to PT trolley as per SOPs
7. Drills and Evacuation procedure is carried out according to OSH Act

65

DEFINITION OF TERMS

- Team work- combined group work directed at efficiently performing a given task
- Basic life support-Basic life support (BLS) includes recognition of signs of sudden cardiac arrest (SCA), heart attack, stroke, and foreign-body airway obstruction (FBAO); cardiopulmonary resuscitation (CPR); and defibrillation with an automated external defibrillator (American Heart Association (AHA), 2010).
- Positioners- a device used by the surgical team members to align the patient's body for a given surgical procedure
- Fire drill- method of practicing how a building would be evacuated in the event of a fire or other emergencies

66

PT IDENTIFICATION

- Use of a standard process to verify patient identification, the surgical procedure, and the surgical site is imperative to maximize patient safety (World Health Organization, 2008). This allows for prompt intervention if any discrepancies are identified.
- The identity of the patient is verified before transporting and before any procedure. Patient identification is a critical issue in health care. The perioperative theatre technologist is responsible for patient identification according to facility policy and the mutual guidelines agreed on by all professional surgical organizations. No patient should be transported and no procedure should be initiated until the protocol for identification has been completed, even if the patient is known to the health care staff.

67

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- All patients are identified in at least three ways. **The patient's wrist or ankle band** is imprinted with the patient's name and other unique identifiers such as **birth date and hospital number**. If a scan or imprint card system is used, the patient's identification card is used to process all paperwork and matches the patient's identification bracelet. This card must be firmly attached to the chart during transport and must remain with the chart until the patient returns to his or her hospital unit. The patient's chart must accompany the patient whenever the individual is transported from the unit

68 TO VALIDATE THE PATIENT'S IDENTITY, FOLLOW THESE GUIDELINES:

- 1. Examine the patient's identity band. Compare both the name and the number with those on the patient's chart.
- 2. Ask the patient to state his or her full name and date of birth. Do not call the patient by name before asking the patient to state his or her name.
- 3. Ask the patient to tell you what procedure he or she is undergoing and to point to the side on which the surgery will take place.
- 4. If the patient does not speak English, or seems to have difficulty understanding, you must seek assistance from an interpreter. This information can be determined ahead of
- time so that an appropriate interpreter is available.
- 5. Remember that patients may be anxious or worried before surgery and might answer closed-ended questions indiscriminately. It is necessary to question the patient without giving the answer.
- 6. Always check the chart, the identification band, and hospital ID number for each patient.

69

OPERATION THEATRE TEAM

- The surgical team consists of the patient,
- the anesthesiologist or anesthetist,
- the surgeon,
- nurses,
- the surgical technologists (or assistants).
- They have unique roles during an operation as outlined below

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- The anesthesiologist or anesthetist administers the anesthetic agent and monitors the patient's physical status throughout the surgery.
 - Surgical assistants scrub and perform the surgery. The person in the scrub role, either a nurse or a theatre technologist, provides sterile instruments and supplies to the surgeon during the procedure.
 - The circulating nurse coordinates the care of the patient in the Operation room (OR). Care provided by the circulating nurse includes assisting with patient positioning, preparing the patient's skin for surgery, managing surgical specimens, anticipating the needs of the surgical team, and documenting intraoperative events

71

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- The surgeon- participates as both a sterile and nonsterile team member. At the start of the case, the surgeon performs sterile techniques to place the trocars. He or she then breaks scrub to operate from the surgeon's console. The surgeon returns to the sterile field (after scrubbing, regowning, and gloving) near the close of the procedure to remove the trocars and close the incisions. The surgeon directs the flow of the procedure and is responsible for coordinating the activities of everyone on the team

72

TEAM WORK

- A team is a group of people who come together to reach a common goal or set of goals. The surgical team is only one type of team that plans and implements patient care in the operating room. In some large hospitals, certain personnel work within a surgical specialty, such as cardiology or orthopedics. In this type of structure, surgical technologists work with their peers to design instrument sets, order equipment, and update the surgeons' procedural changes. The team may or may not have a team leader.
- The surgical team includes the surgeons, anesthesia provider, assistants, surgical technologist, and registered nurse. They all work together on a single procedure. Communication usually is focused, task oriented, and at times intense

73

CHARACTERISTICS OF GOOD TEAMWORK

- Good teamwork is the result of healthy relationships within the team. This does not mean that conflicts do not arise. Conflict in groups is normal, because people have different ideas, problem-solving skills, values, and beliefs. The qualities of a good team reflect how conflict is managed and include:-
- Yielding - This does not mean giving up one's values or beliefs. It means accepting the fact that others have valid points of view and conceding when one has made incorrect assumptions or conclusions.
- Change - One of the purposes of a team is to adjust to a changing environment, such as unfolding events during a surgical procedure, a change in instrumentation, or new responsibilities. Team members must identify new tasks or procedures and implement them with as little disruption as possible.

74

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- Politeness - This manner in which people speak to and behave toward each other. The attributes of acceptable behavior include respect, gratitude, and acceptance.
 - Collaboration- This is working together for a common purpose. In the operating room, personnel contribute their skills, time, and energy to the care of the surgical patient

75 TRANSFERRING PATIENT TO THE OPERATION TABLE

- Before the patient is transferred to the operation room, the following should be verified
- Patient identity,
- procedure to be performed
- a signed consent form.

76

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- The following factors determine whether a patient can ambulate to the operation bed, use a wheelchair or a stretcher:
 - Presence of invasive devices,
 - state of the patient,
 - planned procedure
 - the institutional policy.

77

PT TRANSPORTATION ON A STRETCHER

- Stretchers should have side rails and lock mechanisms and the head should elevate to alter the patients comfort and position. The side rails are kept up and safety strap secured during transport. The staff member who is close to the proximity of the patient's airway should push the stretcher. In collaboration with a nurse, you should assess the patient's condition to determine whether special equipment like an ICU bed are required during transport.
- Once sufficient staff members are present, the stretcher/bed is wheeled close to the operation table, the wheels of both the operation bed and the stretcher/bed locked and the side rail that is proximal to the operation bed lowered. Invasive lines and devices are made visible and kept free from entanglement. Some team members stand at the far end of the operation table; others on the proximal end and use appropriate body mechanisms to prevent injury to self during transferring of the patient. A roller or a transfer sheet is used to transfer a patient if they are not mobile and invasive devices supported in place to prevent entanglement.

78 BASIC NURSING SKILLS THAT U NEED TO BE COMPETENT AT IN PT POSITIONING

- **Observation of vital signs** ; These include Blood Pressure; Temperature; Pulse and Respiration. They help in determining the most appropriate positions for a patient. For example, a patient with hypotension or bradypnea may not be positioned in reverse Trendelenburg position.
- **Bed making procedures**
- **Basic life support** ; Knowledge and certification in Cardiopulmonary resuscitation (CPR) is paramount in ensuring that health care staff are able to respond in case of a cardiac or respiratory arrest. The goal of CPR is to support and restore oxygenation, ventilation, and circulation. Restoration of intact neurological function accompanies this process. Return of spontaneous circulation is accomplished with basic life support (BLS) or advanced cardiac life support

79

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- A perioperative theatre technologist should possess knowledge and skills in BLS as learnt in the unit of competency "Provide First Aid Services". He or she should also be able to assess for signs of Cardiopulmonary arrest which may include nausea, shortness of breath, chest pain or pressure, pain radiating from the jaw, neck, or Shoulder and cardiac dysrhythmias

80

APPLIANCES USED IN BED MAKING

- Mackintosh- Water proof material used to protect the bottom sheets, pillows and mattress from getting wet
- Bed Rest/Back Rest- Helps the patient sit in upright position. May be attached to or separate from the bed and can be adjusted to different degrees
- Fracture Boards- They are boards (wooden) placed under the mattress to provide a firm rigid foundation to the bed and prevent the mattress from sagging. Aid in immobilization on affected part of the body.
- Bed Cradle- Appliance used to keep the weight of the linen off the patient e.g. in patient with burns to protect linen from touching the area with wound
- Sand Bags- Small bags made of impermeable material filled with sand. They are used to support patients legs to prevent foot drop. May also be used to immobilize a fractured limb

81

- Bed Blocks- Made of wood and used to raise the bed on one side e.g. to supply blood to vital organs like the brain
- Air Rings -Rubber ring placed beneath the patient's buttocks to keep them from direct contact with the bed. Relieve pressure hence prevent pressure sores.
- Bed Tables- Specially made tables which can be drawn up in front of the patient and may be used during meals or for leaning slightly forward incase the patient has difficulty in breathing
- Hot Water Bottles- Bottles of rubber used to give warmth to the patient. They may also be used to relieve pain
- Foot Boards- Used to secure and support the patients foot
- Water Beds- They are just like mattress though have a place to fill with hot water
- Air Beds- These are mattresses that are filled with air
- Ripple Mattresses- Have segments and uses electricity to put air pressure. Used to relieve pressure

82

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- **Positioners and Positioning of patient on operation table**
 - The surgical patient is positioned on the operating table for a specific surgical procedure:
 - To allow optimum access to the operative site
 - To reduce adverse physiological effects and prevent injury during surgery
 - To permit optimum access for anesthesia care (includes access to venous and arterial sites, airway, and monitoring sites)

83

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- **Positioning** - Each patient is unique and has specific considerations, such as age, joint mobility, and disease. Because of the high risk of serious and permanent injury, the surgical team must be guided and directed in the positioning process. The anesthesia care provider, surgeon, and circulator draw this direction from their knowledge of the patient's status.
 - **Planning**- All necessary equipment must be assembled ahead of time. Pads, positioning devices, table accessories, and transfer devices must be on hand before positioning begins. Bariatric/ obese table extensions or special tables must be on hand before the patient arrives in the surgical suite. Adequate personnel must be available to complete the task safely.

84

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- **Teamwork-** Teamwork is needed to create smooth, step by-step coordination.
 - **Theatre technologists have specific responsibilities during patient positioning as outlined below:**
 - Understand common positions and the surgeries for which these positions are used
 - Know ahead of time the position that will be used for each assigned surgical procedure
 - Proactively prevent accident and injury during positioning
 - Question any aspect of the patient's position that appears to have risk potential
 - Remain alert and focused on patient safety
 - Communicate clearly with other members of the team

85

PRINCIPLES OF SAFE POSITIONING

- All equipment needed for positioning must be assembled and prepared for use before the patient is brought into the room.
- Adequate personnel must be available to assist before positioning begins. Do not risk the patient's safety because of a crowded surgical schedule.
- Before positioning begins, all team members should be familiar with the position and each person must understand his or her role in positioning
- The patient should not be moved except on the instructions of the person directing the move.
- Although everyone involved is responsible for the patient's safety, one person—usually the surgeon, anesthesia care provider, or surgical assistant—guides and directs the others.

86

- In general, the anesthesia care provider must give permission before any change is made in a patient's position because these can cause physiological alterations such as a drop in blood pressure.
- Always check equipment before using it. Tighten the locking devices of all weight-bearing accessories.
- Make sure the table is locked securely in position and do not assume that any accessory equipment is in working order.
- Move slowly when positioning the patient.
- Always move the body within its normal range of motion. This requires knowledge of joint types and anatomy.
- When positioning an unconscious, sedated, or weak patient, make certain that you have complete control of the part you are moving before you begin

87

POSITIONS USED IN OT

- **Horizontal recumbent/ supine/ dorsal**
- The patient is placed flat on back with legs extended or slightly flexed. A bath blanket is placed over patient lengthwise. Pillows should be placed under the neck to prevent neck hyperextension. Arms should be placed (pronated) along the trunk. Extra pillows should be placed at the pelvis to prevent hyper rotation
- **Dorsal recumbent**
- Patient is placed flat on back with one pillow under head; the knees flexed and separated and feet flat on bed. A blanket is arranged to cover extremities and expose perineum

88

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- **Prone position** Patient lies on his/her abdomen. The head is turned to either side for comfort. Pillow is placed under the lower chest, pelvis and ankles for comfort. Arms may be placed on the side or flexed near the head
 - **Lateral/side lying;** Patient is placed on the side with the head supported on low pillow. A pillow is used to support the body anteriorly and another one is tucked at the waist from the back to support the patient in the position. Legs are flexed forwards and pillow is placed lengthwise between the legs to separate them and support the top leg
 - **Sims/recovery/semi prone position**
 - The patient is placed on left side somewhat obliquely across the bed with buttocks to edge of mattress. The body is inclined forward, the left arm drawn back under patient and the right arm placed in front. The knees are flexed upon the body—the right more than the left. A pillow is placed under the head

89

- **High Fowlers Position**
- Used when the head of the bed needs to be elevated as high as possible. The upper half of the patient's body is between 60 degrees and 90 degrees in relation to the lower half of their body. The legs of the patient may be straight or bent.
- **Trendlenburg position**
- Client lies in supine position on an adjustable bed or operating table. S/he is then secured and supported using straps on the table before adjusting the bed/table. The bed/table is then tilted to lower the head at an angle of 45 degrees below the horizontal plane.
- **Reverse trendelenburg**
- The reverse trendelenburg position is used to expose the prostate and upper abdominal region during surgery. This position also helps respiration for overweight and obese individuals.

90

- **Dorsal lithotomy**
- The patient is placed in supine position on adjustable bed/ examination table/operating table
- Client's buttocks are placed as close as possible to the edge of the bed/table. Both knees are flexed simultaneously and supported on stirrups to prevent injury when each leg is lifted singly

91

- **Knee chest position** ;Client is positioned in prone position. The client then assisted to kneel on the bed raising hips to the air and resting her weight on her chest and knees. The head is turned to one side, supported on a pillow and arms flexed at the elbows extending, then to the bed in front of her.
- **Jack knife or kroaske or bozeman**
- Patient is placed on a prone position with the hips directly over the band of the examining table. The table is tipped with the head lower than the hips, the foot part of the table lowered so that the patients feet are below the level of his head. A pillow is placed under the pelvis and abdomen to relieve the strain

92

MAKING DRILLS AND EVACUATION

- Fire drills are held regularly in all health care facilities. Staff training on fire includes emergency response, the location of fire extinguishers and fire escape routes, and how to activate the fire alert system. Most fire extinguishers used in the operating room are water-based, carbon dioxide, or dry powder. Carbon dioxide is the preferred type for operating room fires.
- During fire extinguisher training, employees and students are asked to remember the acronym PASS:
- Pull the ring from the handle.
- Aim the nozzle at the base of the fire.
- Squeeze the handle.
- Sweep the fire with tank contents



93

FIRE IN THE OPERATING ROOM

- Patient fire
- Patient fire is a devastating event. Approximately 21% of patient fires occur in the airway, 44% on the face, 8% inside the patient, and 26% on the skin. It takes only moments for a flash fire to engulf the patient. To stop the progression of the fire, the triangle of fire must be broken. This means that one or more components (**fuel, oxygen, or source of ignition**) must be removed from the fire

94

- During a patient fire, time is critical. Three steps are immediately taken to protect the patient and stop the fire:
- 1. Shut off the flow of all gases to the patient's airway.
- 2. Remove any burning objects from the surgical site.
- 3. Assess the patient for injury and respond appropriately. The anesthesia care provider reduces the flow of oxygen in the event of fire around the airway. At the same time, burning objects are removed from the field as safely as possible. The surgical technologist must stand by for direction from the surgeon and other staff members in the room. Patient fires usually can be contained when one of the elements of the fire has been removed. The next phase of the emergency focuses on the patient's injuries



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- **Structural Fire**
 - If the fire extends beyond the immediate patient area, the surgical team must activate the hospital evacuation plan. This plan is based on four immediate actions, which are easily
 - remembered by the **acronym RACE:**
 - Rescue patients in the immediate area of the fire.
 - Alert other people to the fire so that they can assist in patient removal and response. Activate the fire alert system.
 - Contain the fire. Shut all doors to slow the spread of smoke and flame. Always shut off the zone valves controlling inline gases to the room.
 - Evacuate personnel in the areas around the fire.

96 **LEARNING OUTCOME 4 HANDLE INSTRUMENTS, APPARATUS AND CONSUMABLES**

1. instruments and consumables are identified according to the procedure to be carried out
2. Instruments, swabs and sharps are counted before and after the procedure according to WHO standards
3. Instruments, swabs, sharps and consumables are confirmed and recorded according to the procedure performed
4. Swabs and sharps are discarded according to WHO standards and environmental protection regulation and SOPs

97

DEFINITION OF TERMS

- Swabs- porous materials used to absorb body fluids such as blood or pus from body tissues [raytec gauzes/abdominal packs]
- Theatre instruments- devices used to perform certain theatre activities such as cutting, scooping, tissue scrapping, coagulation, holding, grasping or even suturing
- consumables - are goods used by individuals and businesses that must be replaced regularly because they wear out or are used up.
- They can also be defined as the components of an end product that is used up or permanently altered in the process of manufacturing such as semiconductor wafers and basic chemicals

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- **Identification of Operation Theatre Instrument apparatus and consumables**
 - Surgical instruments are classified and categorized accordingly depending on the purpose and functions e.g. cutting /dissecting, retracting and exposing familiarizes your self all the sets and packs ,know the function and purpose of all instruments

99

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- Cutting and Dissecting – These instruments usually have sharp edges or tips to cut through skin, tissue and suture material. Surgeons need to cut and dissect tissue to explore irregular growths and to remove dangerous or damaged tissue. These instruments have single or double razor-sharp edges or blades. OR personnel need to be very careful to avoid injuries, and regularly inspect these instruments before using, for re-sharpening or replacement
 - Clamping and Occluding – Are used in many surgical procedures for compressing blood vessels or hollow organs, to prevent their contents from leaking. These instruments are also used to control bleeding. They are either straight, curved or angled, and have a variety of inner jaw patterns

100

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- Retracting and Exposing – These surgical instruments are used to hold back, or retract organs and tissue so the surgeon has access to the operative area. They spread open the skin, ribs and other tissue; and are also used separate the edges of a surgical incision. Some retracting and exposing instruments are “self-retaining,” meaning they stay open on their own. Others manual styles need to be held open
 - Grasping and Holding – These instruments, as their name suggests, are used to grasp and hold tissue or blood vessels that may be in the way during a surgical procedure. Medical assistants must make sure these instruments are working correctly, and that their locking mechanisms are lubricated for easy opening and closing, particularly after cleaning and reprocessing.

101

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- **Operation Theatre Instrument, apparatus and consumables handling techniques**
 - The surgical technologist takes a proactive role in checking instruments for safety and correct operation. This can be done while instruments are being prepared for a procedure, or after the procedure when instruments are sorted and prepared for terminal disinfection. Stainless steel instruments can be damaged mechanically or structurally, or there can be defects on the surface that lead to weakness or cross-infection. Damaged instruments must be withdrawn from service because they can lead to patient injury, lost operating time, and increased expense. Equipment and instrument management begins in the operating room at the point of instrument use

102 GENERAL GUIDELINES IN HANDLING OF INSTRUMENTS INCLUDE THE FOLLOWING

- Inspect all instruments before use on the instruments table and clearly identify any defective or missing instruments.
- Handle instruments carefully and one at a time or in small numbers.
- Use instruments only for the purpose for which they were intended.
- Use scissors only for the material for which they were designed because cutting other materials can cause misalignment, loss of sharpness or damage.
- Use forceps appropriate to the task at hand because improper alignment can create serious problems with function and harm to the patient

103

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- Match needle holders to the size of needle for which it is intended.
 - During the procedure, wipe blood and tissue from instruments immediately after use. Debris that is allowed to dry on instruments causes deterioration, corrosion, and pitting. Saline solution may be used to wipe instruments that will be used again during the procedure.
 - Protect tips of instruments with tip protectors to prevent them contacting other instruments and snagging on towels and sponges
 - Remove disposable sharps and manage sharps appropriately following the procedure

104

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- During preparation of instruments, open box locks, insure that all multipart instruments are disassembled, keep parts together for easy reassembly after processing, expose all surfaces to come into contact with cleaning, disinfectants, and sterilants
 - All cannulated equipment and handpieces should be flushed.
 - Organize instruments into sets- All instruments, used and unused, go back into the set.
 - Place heavy instruments on the bottom; lighter instruments on top.
 - Contain contaminated instruments to protect personnel.
 - Transport instruments to SPD as quickly as possible- Instruments should not remain in water for lengthy periods of time because biofilms may form, particularly within lumens.
 - Follow the correct procedure for decontamination of instruments as per WHO standards or institutional policy.

105

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- **Verification and recording of Operation Theatre Instruments, apparatus and consumables**
 - Different registers are used to verify and maintain a record of operation theatre instruments and other supplies. The unit of competency 'maintain theatre instruments and apparatus' details how to conduct verification of operation theatre instruments, apparatus and consumables

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- **Disposal of swabs and sharps**
 - In all surgical procedures, all sponges and sharps are counted before, during, and at the end of the procedure. Therefore, before swabs and sharps are disposed, a count must be performed before swabs and sharps disposal. The following is an outline of the standard procedure for surgical count

107

WHAT TO COUNT

- Soft goods (textiles) including radiopaque sponges of all types, surgical towels, and packing material (e.g., material used in the nasal cavity to absorb blood/ nasal tampons , brain swabs)
- • Individual suture packages
- • Sharps including intact knife blades, hypodermic needles, suture needles, trocars, and fragments, if broken
- • Instruments note all the instruments.

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- • Miscellaneous items such as electrosurgery tips, cranial (Raney type for controlling bleeding on the scalp) clips and their cartridges, umbilical and vessel loops, electrosurgery cleaning pads, small bottles and their caps, medical device parts, and any other object that can be lost in the surgical wound

109

WHEN TO DO A COUNT

- • Before the procedure (to establish a baseline)
- • Whenever additional items are introduced to the sterile field intraoperatively
- • At the start of wound closure
- • Before closing any hollow organ
- • Before closing a body cavity
- • During closure of skin or other final tissue layer
- • Whenever permanent relief personnel join the surgical team
- • At the request of the surgeon or any other team member

110

HOW TO PERFORM A SURGICAL COUNT

- According to the healthcare institution's policy
- In a systematic, deliberate way, without distraction or interruption
- Without deviation from policy and protocol
- In an established sequence by the type of item being counted (e.g. instruments, sponges, sharps)
- By separating or pointing to each and every item and counting them individually
- Audibly and visually; both people performing the count do so aloud, as they see the items being counted

111

WHO SHOULD PERFORM A COUNT

As designated by health care facility policy

- The circulator and scrubbed technologist or nurse
- Other members of the sterile team and circulator
- All counts are documented in the patient record. Documentation includes names of the individuals who participated in the counts (including relief staff) and their signatures attesting to a correct or incorrect count. Count sheets on which real-time counts are documented may become part of the permanent record, according to facility policy.
- A retained item is reported as a sentinel event, even if the item is eventually located and the count validated. This requires documentation on an incident report or by other facility protocol. If the item is found, it is documented as a near miss

112

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- three shortcomings of using damaged operation theatre instruments and apparatus
 - they can lead to patient injury
 - lost operating time,
 - increased expense

113

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- The report must include steps taken to find the missing item. Once a count has been complete, swabs and sharps are discarded in relation to OSHA guidelines
 - **Environmental health**
 - The surgical environment contains many potential sources of environmental hazard. Some of these are obvious, but others are not. Environmental engineering in the operating room follows national medical engineering standards for electrical circuits, inline gases, lighting, and other utilities. Strict safety standards ensure that patients and staff members are protected from extreme hazards and accidents such as fire, explosion, and electrocution.

114 **LEARNING OUTCOME 5 RESPOND TO OPERATION THEATRE ALARMS AND SIGNALS**

- Introduction to the learning outcome
- This learning outcome specifies the content of competencies required to plan for Execution of Perioperative Theatre Safety Precautions. It includes types of theatre alarms, Identifying theatre alarms and signals , Analysis of alarms and signals, Responding to alarms and signals, Operation Theatre Practice

115

OBJECTIVES

- I. Theatre alarm signals are identified in accordance with type and source of alarm
- II. Theatre alarms signals are received and analysed according to type and source of alarm
- III. Signals are acted upon according to work place policy and SOPs



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- **Definition of terms**
 - Alarm- a system designed to signal the presence of a hazard requiring urgent attention and to summon emergency medical personnel
 - Signal- something that conveys information or causes an action

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- **Types of theatre alarms**
 - Alarm systems are designed to alert staff members to safety risks and should never be turned off or made barely audible. Alarms are key components of peri-operative monitoring devices and function as signals for life-threatening situations as well as device malfunction or imminent danger. An alarm is an automatic warning that results from a measurement, or any other acquisition of descriptors of a state, and indicates a relevant deviation from a normal state.

118

- **Common operation theatre alarms**

- Shouting Alarms
- Bell alarm
- Electronic alarms
- Fire safety alarms
- Air exchange alarms
- Electro surgical unit alarms

119

IDENTIFYING THEATRE ALARMS AND SIGNALS

- The surgery department should develop a systematic, coordinated approach to the safe management of alarms that involves the surgical team, information technology experts, healthcare technology management technicians (biomedical technicians), risk management and health delivery organization administration.
- The surgery department should complete a thorough review of an adverse event involving harm or potential harm to a patient and improper management of an alarm(s).
- The perioperative theatre technologist is responsible for the control of the active electrode (also called electrosurgical or electrocautery pencil or Bovie) when not in use to prevent inadvertent activation to avoid burns to the patient and surgical team, and ignition or puncture of the drapes.
- The perioperative theatre technologist should complete continuing education to remain current in their knowledge of alarm management

120

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- Color coding is a visual reminder system to warn, inform and guide employees. OSHA assigns specific meanings to certain colors; therefore, colors can be a warning of a particular hazard or give information or directions. Color coding is considered highly desirable. The main intent, however, is not to demand it in shops and laboratories, but to recognize a standard color code wherever color coding is used. Be aware of your specific work area and the color coding system used there

121

- These colors usually indicate the following:
- **Red** – indicates (1) danger, (2) stop or (3) presence of fire protection equipment.
- **Orange** – marks the dangerous parts of machines or energized equipment which may cut, crush, shock or injure employees. Orange emphasizes these hazards when the guards or enclosures around them are open.
- **Yellow** – warns of physical hazards and means caution. A striped or checkered pattern of yellow and black may be used to help attract attention.
- **Blue** – denotes caution and its use is restricted to marking out-of-service equipment which should not be used.

122

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- **Green** – indicates either the location of safety equipment such as first aid materials or conveys safety information.
 - **Purple** – used for radiation hazards. It may contain a combination of purple and yellow.
 - **Black & White** – or a combination of the two are used to designate traffic and housekeeping markings. Stripes, checkers or other variations are often used.

123

NOTE

- The fact is that green and blue are the opposite of red on the spectrum of visual light, and during an operation, a surgeon is nearly always focusing on red colors. Green is well-suited to help doctors see better in the operating room because it is the exact opposite of red on the color wheel

124 **LEARNING OUTCOME 6 EVALUATE AND WIND-UP PERIOPERATIVE THEATRE SAFETY**

- This learning outcome specifies the content of competencies required to plan for Execution of Perioperative Theatre Safety Precautions. It includes Occupation health and safety Act, Operation Theatre room layout, Documentation of perioperative safety measures ,Waste disposal and Operation Theatre Practice

125

OBJECTIVES

1. Safety measures are followed in accordance with Occupational Safety & health Act standards
2. Operation theatre is well set according to Standard Operation Procedures and workplace policy
3. Operation theatre safety measures are documented according to workplace policy
4. Incident report is written as per workplace policy
5. Waste is disposed with due regard to environment protection regulations

- **Definition of terms**

- Safety measures- measures taken to reduce harm or improve safety
- Standard operating procedures- a set of step-by-step instructions compiled by an organization to help workers carry out routine operations

127

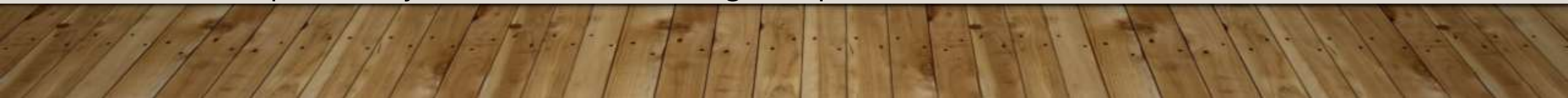
WHAT FOUR ASPECTS DOES OCCUPATIONAL SAFETY AND HEALTH (OSH) TARGET?

- The protection and promotion of workers health by preventing and controlling occupational diseases and accidents
- The development and promotion of healthy and safe work, work environments and work organizations
- Enhancement of physical, mental and social well-being of workers; and Enabling workers to conduct socially and economically productive lives and to contribute positively to sustainable development (WHO 2010).
- Describe the responsibility of an organization's management in OSH
- To ensure that the Occupational Safety and Health Policy, Organizational Responsibilities and the detailed arrangements concerning the health, safety and welfare of all members of staff, clients, contractors, visitors and students are made known and implemented in theatre

128

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- To review the written statement of the general policy with respect to safety and health in the workplace;
 - To carry out suitable and sufficient risk assessment to safety and health of members of staff students and others who within their area of responsibility may be affected by activities in the health sector.
 - Where hazards are identified which cannot be eliminated, the manager will ensure that safe systems of work are designed and implemented, recorded, monitored and reviewed as necessary and results of the assessments are disseminated to the relevant persons

129

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- Will carry out suitable and sufficient risk assessment to safety and health of members of staff students and others who within their area of responsibility may be affected by activities in the health sector.
 - Where hazards are identified which cannot be eliminated, the manager will ensure that safe systems of work are designed and implemented, recorded, monitored and reviewed as necessary and results of the assessments are disseminated to the relevant persons;
 - Will investigate all accidents, incidents or near misses concerning health and safety with the view to identifying the cause(s) and preventing a recurrence;
 - Will participate in regular Occupations and Safety inspections of their areas of responsibility in accordance with agreed procedures
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130

WHAT IS THE SPECIFIC RESPONSIBILITY OF AN EMPLOYEE IN OSH

- Ensure their own safety, health, and that of persons who may be affected by their act of commission or omission.
- Cooperate with the employer and co-workers in their workplace to achieve a safe and healthy work environment by following OSH policy guidelines and standard operating procedures
- Make themselves familiar with the OSH policy guidelines
- Use PPE as provided by employer to prevent risk to his/her safety and health
- Comply with safety and health Standard Operating Procedures (SOPs)
- Report to the supervisor of possible hazards



131

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- What factors guide the layout of an operation theatre?
 - environmental control
 - traffic control
 - desire to prevent surgical site infection (SSI).

132

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- The OR department is divided into four zones based on varying degrees of cleanliness, in which the bacteriological count progressively diminishes from the outer to the inner zones (operating area) and is maintained by a differential decreasing positive pressure ventilation gradient from the inner zone to the outer zone.
 - 1.Unrestricted zone or clean area.
 - 2.Semi restricted zone or sub sterile area
 - 3.Restricted zone or sterile area
 - 4.Disposal zone or area

133 DOCUMENTATION OF PERIOPERATIVE SAFETY MEASURES

- Documentation for the surgical procedure is completed as usual, with accurate recording of the chain of events. Operative records for patient care, anesthesia, sponge counts, and all usual forms must be completed as for any case.
- **Assignment: Review guidelines on documentation of perioperative safety measures**
- **Perioperative theatre practice**
- Recommended practices are optimum behavioral objectives for caregivers. They may not always be achievable, as standards are, because of limitations in a particular practice

134

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- setting.
 - Recommended practices state what ideally can be done. Practice are directed toward providing safety in the perioperative environment. They are premised in principles of microbiology, scientific literature, validated research, evidence-based practice, and experts' opinions. Although compliance is voluntary, individual commitment, professional conscience, and the practice setting should guide perioperative caregivers in using these recommended practices. They represent an optimal level of practice and are achievable

135

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- NOTE
 - Revise and review notes on management of sharps and waste and their disposal methods as we had discussed earlier.

136

THANK YOU
SUCCESS

