

8. The Operating Theatre

You will probably be involved in one or two operating 'lists' in theatre each week. You should expect to be able to 'scrub up' for most of the cases and at least assist. Hopefully you will be allowed to carry some simple dento-alveolar surgery under supervision, although the days when significant numbers of wisdom teeth were removed under general anaesthetic have now gone.

The operating theatre is the most expensive facility in the hospital. It is therefore important that things run smoothly and efficiently and you may be able to contribute to this. However, the main consideration in the theatre is patient safety and this does not equate easily with speed, so things often run frustratingly slowly.

You will find that the operating theatre suite will have many individual theatres. Usually, these will be dedicated to specific disciplines or groups. Orthopaedics usually has its own dedicated theatres with laminar air ventilation in which bacteria free filtered air is circulated under pressure into the operating site so that contaminated air is removed away from the patient. This may reduce the incidence of airborne infection which can be disastrous in joint replacement surgery.

Each theatre will have its own anaesthetic room where the patient is prepared and anaesthetised; a preparation ('prep') room where the instruments and other equipment are prepared and laid out on trolleys; a 'scrub' room where surgeons, assistants and nurses



Theatre. The surgeon, assistant and scrub nurse wear sterile gowns; there is an unsterile 'runner' who fetches additional equipment.

wash their hands and put on gowns and gloves; there will be a 'dirty' area where instruments and drapes are taken after the operation and where pathology specimens from cancer surgery are taken to be orientated and pinned to a cork board for the pathologist. Somewhere in the suite there will also be store rooms, staff rest rooms, a kitchen, offices, a reception area and recovery rooms where the patients are taken immediately after surgery. All the theatres will be air conditioned with about 20 changes of air per hour so that airborne bacteria shed from the patients' or staff's skin or even from a dirty wound will be swiftly carried out.

A few days before each operating session a list of patients will have been prepared, usually by the Consultant's secretary or booked admissions team. The patients will be listed in order of booking time with their ages, hospital number and procedure recorded; there may be additional special theatre requirements added. The patients will have previously been screened by a nurse using a pre-assessment questionnaire to highlight medical or social problems which might impinge on their surgery or recovery from it. The surgery should have been explained and discussed with the surgeon, and a consent form signed. On the day of the surgery there will be further checks with the patient, in particular whether they have any last minute questions, whether they have starved for six hours (if they are to receive a general anaesthetic) and if someone is available to take them home (if a day case).

Each theatre in the suite will have a nurse in charge who may be a staff nurse or sister. When the anaesthetist and nurses are ready and the surgeon is known to have arrived, the nurse in charge will inform the theatre receptionist to send for the patient who will be escorted from the ward by a porter and a ward nurse. On arrival, the patient will be booked in at the theatre reception, their identity will be checked, both verbally and by looking at their wrist band, and the consent form will be checked. They will then be taken to the anaesthetic room.

The anaesthetic room contains all the equipment necessary to put the patient to sleep. The anaesthetist will be assisted by an Operating Department Practitioner (ODP). While the patient is being anaesthetised the surgical instruments are prepared in the 'prep' room by a nurse who has 'scrubbed'. This 'scrub nurse' will prepare the sterile instruments while



Anaesthetic room

an unsterile nurse, the ‘runner’, will hand things to her, touching only the unsterile part of the wrappings. The instruments used in any operation by a particular surgeon will be kept on a list in a card index in the theatre or computer so the nurse will know which instruments to prepare.

While the patient is in theatre all the staff involved in the operation will go through a World Health Organization (WHO) checklist which has three stages. The first, known as ‘sign in’, occurs before the anaesthetic is induced. Once ‘sign in’ has occurred the anaesthetic can commence. The ODP will draw up the drugs, unwrap and pass equipment and set up the monitoring equipment. When anaesthetised the patient can be transferred to the operating theatre and the operation commences. In the theatre itself the second stage of the WHO checklist, known as ‘time out’, takes place.

The surgeon and assistant should scrub while the patient is in the anaesthetic room so that they are ready to start as soon as the patient is on the table. During the operation the ODP will assist the anaesthetist while the scrub nurse passes instruments to the surgeon. The runner should remain in theatre and fetch equipment and instruments as required. The trainee should scrub and participate in the surgery in whatever manner instructed by the surgeon.

After the operation the final stage of the WHO checklist, known as ‘sign out’, is made. The senior surgeon will probably wish to write up the operating notes himself. For day cases a TTA (to take away) prescription should be made, usually on the computer, with an electronic discharge for the GP, usually completed by the trainee.

WHO Surgical Safety Checklist - Part 1 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:-

Known allergy: yes or no

Difficult airway/aspiration risk

No

Yes and equipment/assistance available

Risk of >500ml blood loss

No

Yes and adequate IV access and fluids planned

There are several operating theatre rituals and conventions you will need to know about and adhere to; these are principally designed to reduce cross infection. The evidence for their efficacy is variable so you will find that there will be some slight variation between hospitals. You may find that some hospitals still require patients to remove all items of their own clothing, cover their hair and take off any jewellery. There is very little evidence to support these measures as an aid to cross infection so you will find most hospitals have abandoned these procedures. It is usual practice to tape rings to prevent their being dislodged and lost.

You will enter the theatre suite through a door directly into a changing room where you should change into an operating cotton suit; this will be freshly laundered but socially clean rather than sterile. You will find the appropriate sized suit on a shelf but some hospitals dispense them from a machine for which you will need your identity card. Outdoor shoes should be replaced with theatre footwear with impervious soles and these should be regularly cleaned. There is little evidence to show that leaving theatres in a surgical suit and returning without changing it increases infection rates, but it is usual to wear a coat or cover gown over the suit while outside the theatre. It is forbidden to wear a theatre suit outside the hospital building to avoid external contamination. You should find that it is normal practice in most theatres for all staff to wear protective caps. Again



The sterile scrub nurse is preparing the instruments in the 'prep' room. The unsterile 'runner' is passing equipment by holding the unsterile outer wrapping.



The scrub room. It is equipped with elbow operated taps. There are dispensers on the wall containing disposable nail brushes and sponges impregnated with chlorhexidine, PCMX or iodine and separate dispensers. Sterile gloves are on the wall.

WHO Surgical Safety Checklist - Part 2 Time out

All team members introduce themselves by name and role

Surgeon, anaesthetist & nurse verbally confirm:-

Patient, Site, Procedure

Anticipated critical events:-

Surgeon reviews: Critical or unexpected steps, operative duration, anticipated blood loss

Anaesthesia review: any specific patient concerns

Nursing reviews: sterility confirmed, any equipment issues or other concerns

Has antibiotic prophylaxis been given in last 60 minutes? Yes/not applicable

Is essential imaging displayed? Yes/not applicable

there is little evidence to support the need for this but adherence to this ritual is universal.

Staff who wear jewellery should remove it in theatre but a single wedding ring is usually not removed. It is thought that a ring worn beneath a glove does not contribute to cross infection although it may lead to an increase in glove perforation. False finger nails, however, do harbour pathogenic bacteria and should not be worn.

The process of pre-operative hand washing and donning surgical gloves and sterile gown is known as

'scrubbing up'. Finger nails should be kept short, and the first wash of the day should include a thorough clean of the finger nails using a stick or brush. Thereafter the hands should be washed using chlorhexidine gluconate 4%, 7.5% Povidone iodine scrub solution or PCMX (Parachlorometaxyleneol), using the technique previously described for 2 minutes. The supplied nail brushes should not be used on the skin as they can cause abrasions. Theatre gowns and drapes are now mostly disposable, as these are less permeable to epithelial cells and bacteria shed from staff or patients than the formerly used linen. Once you have scrubbed you should not touch any non-sterile surface or object. If you accidentally do touch something with your hand it is easier to put on a second glove than to change.

WHO Surgical Safety Checklist - Part 3 Sign out

Name of procedure recorded

Instrument, sponge & needle counts correct or not applicable

How the specimen is labeled

Whether there are any equipment problems to be addressed

Surgeon, anaesthetist & nurse review key concerns for recovery & management