Imperial College Healthcare NHS Trust

Invasive Procedures:
Keeping our Patients Safe During Invasive Procedures

Study Guide

Content

Throughout this study guide there are several short self assessment questions. The answers are on the following page to the question.

1. Introduction

Much of what we do every day in our operating theatres and delivery rooms, centres on practices that require real focus, teamwork and leadership. But there are many risks and preventable errors do happen.

In this module, we discuss the important principles and guidelines that ensure patient safety and good communication with our colleagues.

Primarily this module will discuss:

- The different roles and responsibilities of the team in carrying out the 5 Steps to Safer Surgery
- The different roles and responsibilities of the team in facilitating the counting of swabs, sharps, instruments and sundries

Who is this for?

This module is for ALL staff who work in operating theatres, procedure rooms and delivery rooms.

There is some maternity-specific content towards the end of the module.

Some of the links included in the study guide require you to be logged onto the intranet, which you will not be able to access until you have your Trust ICT login details. These are not essential to pass the module and mainly link to policies which you should be aware of.

2. Background

The training in this module is based on these key clinical guidance documents.

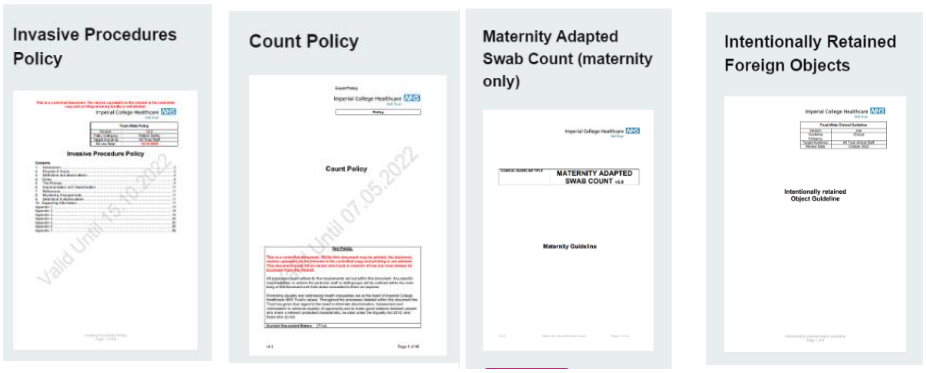
You should refer to the guidance for more comprehensive and detailed information.

We will provide these links at the end of this module as well.

Please note that the 5 Steps to Safer Surgery and the Invasive Procedures Policy simply complement all other guidelines related to invasive procedures, and do not 'negate' any of these guidelines.

Procedures

Please note that the 5 Steps to Safer Surgery and the Invasive Procedures Policy simply complement all other guidelines related to invasive procedures, and do not 'negate' any of these guidelines.



Click on the images above to view the policies. You will need to be logged into the intranet to access these.

Legal and regulatory frameworks

It is important to understand the regulatory and legal frameworks that apply to the safe care of patients during invasive procedures.

Below are some of the key frameworks that you should be aware of.

Duty of care and accountability

The Health & Care Professions Council (HPC) states:

"You are responsible for your professional conduct, any care or advice you provide, and any failure to act. You are responsible for the appropriateness of your decision to delegate a task. You must be able to justify your decisions if asked to and be able to exercise a professional duty of care"

"As a professional, you are personally accountable for actions and omissions in your practice and must always be able to justify your decision"

The General Medical Council (GMC) states:

"All surgeons are responsible for the standards of clinical care that they offer to patients"

NHS Litigation Authority

The NHS Litigation Authority (NHSLA) handles negligence claims on behalf of NHS England.

The NHSLA defines clinical negligence as:

"A breach of duty of care by members of the health care professions employed by NHS bodies or by others consequent on decisions or judgments made by members of those professions acting in their professional capacity in the course of their employment, and which are admitted as negligent by the employer who are determined as such through the legal process".

Under NHS indemnity, NHS employers are ordinarily responsible for the negligent acts of their employees where these occur in the course of the NHS employment.

The Clinical Negligence Scheme for Trusts (CNST) covers clinical negligence claims in relation to incidents taking place after 1 April 1995.

NatSSIPs and LocSSIPs

The National Safety Standards for Invasive Procedures (NatSSIPs) set out the key steps necessary to deliver safe care for patients undergoing invasive procedures and will allow organisations delivering NHS-funded care to standardise the processes that underpin patient safety.

The NatSSIPs recommend that organisations develop Local Safety Standards for Invasive Procedures (LocSSIPs) to harmonise practice across the organisation such that there is a consistent approach to the care of patients undergoing invasive procedures in any location.

LocSSIPs are intended to cover the part of the patient pathway that pertains specifically to the performance of an invasive procedure. They will start at the point at which a patient is admitted to the procedure area and end at the point at which the patient is discharged from the procedure area.

Serious Incidents and Never Events

"You see these things happen. You read it in the newspaper...and you think it would never happen to you. But even that 1% slip of focus, and that's when it suddenly goes wrong"

Kevin Tsang, Consultant Neurosurgeon

Responding appropriately when things go wrong in healthcare is a key part of the way that the NHS can continually improve the safety of the services we provide to our patients.

Serious Incidents and Never Events in health care are events where the potential for learning is so great, or the consequences to patients, families and carers, staff or organisations are so significant that they warrant our particular attention to ensure these incidents are identified correctly, investigated thoroughly and, most importantly, trigger actions that will prevent them from happening again.

What is a Serious Incident?

A serious incident is *"any patient safety incident that appears to have resulted in permanent harm to one or more persons receiving NHS funded care. Permanent harm, directly relate(s) to the incident and [is] not related to the natural course of the patient's illness or underlying condition. [It] is defined as permanent lessening of bodily functions, sensory, motor, physiologic or intellectual, including removal of the wrong limb or organ, or brain damage."*

What is a Never Event?

Never Events are serious, largely preventable safety incidents that **should not occur if the available preventative measures are implemented**. They include things like wrong site surgery or foreign objects left in a person's body after an operation. Whilst they are rare, Never Events can have devastating consequences for the patient, their family, the Trust and the wider NHS.

Never events that involve unintended retention of a foreign objects, can be presented in an acute or delayed fashion:

Acute presentation - generally results in the formation of septic abscess and/or a granuloma

Delayed presentation – may occur months or years after the original surgery, with adhesion formation

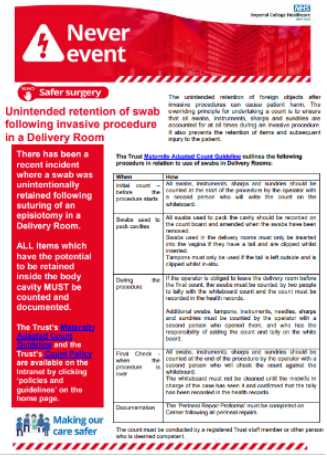
Never Events at the Trust

Despite being an early adopter of the WHO Safer Surgery checklist, the Trust continues to experience Never Events which include:

1. **Wrong site surgery**
2. **Retained instruments/swabs**
3. **Wrong implant/prosthesis**

Below are some of the Never Events that have occurred in operating theatres in recent years.

- Retained Vaginal Pack Post-Partum Haemorrhage and Repair of Perineal Tear – August 2018
- Unintended retention of foreign object following invasive procedure – Sept 2018
- Wrong site surgery – November 2018
- Anaesthetic block administered to the wrong site – Dec 2018
- Anaesthetic block administered to the wrong site – Jan 2019
- Unintended retention of swab following invasive procedure in a Delivery Room – Jan 2019


Never event

Safer surgery

Unintended retention of swab following invasive procedure in a Delivery Room

There has been a recent incident where a swab was unintentionally retained following suturing of an episiotomy in a Delivery Room.

ALL items which have the potential to be retained inside the body cavity MUST be counted and documented.

The Trust's Maternity Adopted Count Guideline and the Trust's Blood Policy are available on the Intranet by clicking 'policies and guidelines' on the home page.

Making our care safer

The unintended retention of foreign objects after invasive procedures can cause patient harm. The overriding principle for undertaking a count is to ensure that all swabs, instruments, sharps and sundries are accounted for at all times during an invasive procedure. It also prevents the retention of items and subsequent injury to the patient.

The Trust Maternity Adopted Count Guideline outlines the following procedure in relation to use of swabs in Delivery Rooms:

When	How
Initial count – before the procedure starts	All swabs, instruments, sharps and sundries should be counted at the start of the procedure by the operator with a second person who will write the count on the whiteboard.
Swabs used to pack cavities	All swabs used to pack the cavity should be recorded on the count board and amended when the swabs have been removed. Swabs used in the delivery rooms must only be inserted into the vagina if they have a tail and are clipped whilst inserted. Tampons must only be used if the tail is left outside and is clipped whilst in-situ.
During the procedure	If the operator is obliged to leave the delivery room before the final count, the swabs must be counted by two people to tally with the whiteboard count and the count must be recorded in the health records. Additional swabs, tampons, instruments, needles, sharps and sundries must be counted by the operator with a second person who opened them, and who has the responsibility of adding the count and tally on the white board.
Final Check – when the procedure is over	All swabs, instruments, sharps and sundries should be counted at the end of the procedure by the operator with a second person who will check the count against the whiteboard. The whiteboard must not be cleaned until the midwife in charge of the case has seen it and confirmed that the tally has been recorded in the health records.
Documentation	The 'Perineal Repair Proforma' must be completed on Cerner following all perineal repairs.

The count must be conducted by a registered Trust staff member or other person who is deemed competent.

Example of a Never Event alert

3. 5 steps to safer surgery

Discussing a Never Event

In this video Associate Director for safety and effectiveness Justin Vale discusses a spinal Never Event with Consultant Neurosurgeon Kevin Tsang.

Click on the image to watch the discussion.

Roles in the operating theatre

Lead Surgeon

The Lead Surgeon is the Consultant, senior operating surgeon or senior practitioner performing the list.

Also referred to as the Senior Operator, the Lead Surgeon MUST be present at the Team Brief and De-brief.

Lead Anaesthetist

The Lead Anaesthetist is the most senior anaesthetist present during the surgical procedure.

They will be responsible for ensuring that Sign In is read aloud and completed. The most senior anaesthetist must ensure the Sign In section of the checklist has been signed before induction of anaesthesia.

Scrub assistant

The Scrub Assistant works closely with the surgeons during the procedure. Some key tasks include:

- maintaining sterility of the surgical field
- performing counts as per the Trust Counts Policy
- handing the required instruments appropriately and in a timely manner
- safe handling of the specimen
- assisting surgeons with the surgery

Anaesthetic assistant

Anaesthetic assistants are readily available to assist the Anaesthetist with :

- induction of anaesthesia
- maintenance of anaesthesia
- airway management
- local and regional block
- reversal of anaesthesia
- assists with the care of the patient from the anaesthetic room until transfer to the recovery area.

Circulating Assistant

The Circulating Assistant, sometimes called a Runner, provides support for the entire team by performing several circulating duties, which can include:

- assisting the scrub nurse to set up the instrument trolley
- assisting the scrub team with scrubbing and gowning
- assisting with transfer and positioning of the patient
- observing the scrub team to ascertain their needs
- anticipating the needs of the scrub team and responds with vigilance.
- fetching and opening the extra needed packs and instrument sets.
- monitoring any breach of sterility of the scrub team and communicating appropriately and in a timely manner

Others in the team

Other people that may be in the operating room, or other procedural rooms, include:

- Other surgeons, surgical trainees/students
- Other anaesthetists, anaesthetic trainees/students
- In maternity, there may be midwives, paediatricians and others

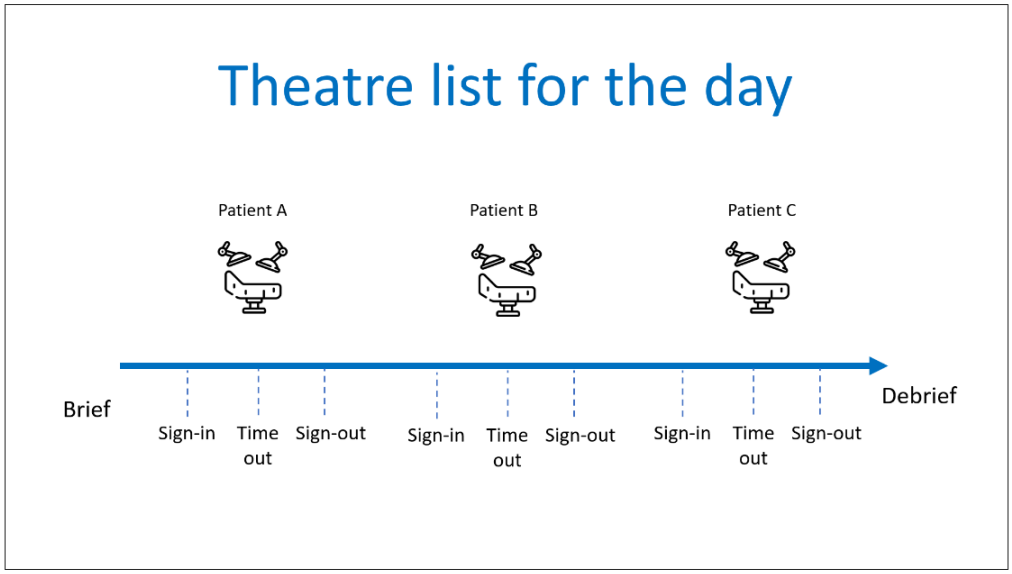
Overview of the 5 Steps to Safer Surgery

> ***"The 5 Steps to Safer Surgery is a team function and all team members should contribute and feel empowered to speak out if they have a concern; every other member of the team must listen respectfully when a concern is raised"***

The aim of the 5 steps is to create that **psychologically safe space that facilitates good practice and patient safety**.

The 5 steps does this by providing an important **prompt for conversation** at different points throughout the list.

When do the 5 steps take place?



Who leads the 5 steps?

- Team Brief at the start of the list should be led by the Lead Surgeon
- Sign in should be led by the Lead Anaesthetist
- Time out should be led by the Lead Surgeon
- Sign out led by the Lead Surgeon
- Team debrief at the end of the list should be led by the Lead Surgeon/Lead Theatre Practitioner

Ideally, all team members should be present for all 5 steps, but at a minimum the **following team members should be present for all 5 steps:**

- Lead Surgeon/operators
- Lead Anaesthetist
- All nurses/theatre practitioners

The only exception may be The Sign In - which must be performed by at least two people involved in the procedure. For procedures performed under general or regional anaesthesia, these should include the anaesthetist and anaesthetic assistant.

1. The Team Brief

Led by:

Lead Surgeon

It's important that the entire team is present for the Team Brief.

Separate conversations with different team members does not constitute a proper Team Brief.

Although the Team Brief was not part of the original WHO Safer Surgery Checklist policy, there is now good evidence and qualitative feedback from teams that demonstrates the importance of a brief in the planning and execution of a procedural list.

It also allows sharing of the mental model for all practitioners who are present. (References – 'Opening the Door'; NHS I paper on Safer Surgery)

When

The Team Brief must be performed at the start of all elective, unscheduled or emergency procedure sessions (with the exception of Category 1 Caesarean or Code Red Trauma Laparotomy).

The Team Brief must be conducted before the first patient arrives in the procedural area.

The first patient must not be anaesthetised until this is complete.

What is discussed

The content of the Team Brief should be modified locally, and must be relevant to the patient and procedure.

For each patient on the list there should be consideration of:

- Diagnosis and planned procedure, including site and side
- Patient positioning
- Availability of prosthesis/special equipment when relevant
- Any infection risk/special precautions required
- Allergies and relevant co-morbidities/anticipated complications
- Need for antibiotic prophylaxis
- Need for blood/blood products
- Post-operative destination (Daycase / Ward bed / ICU/HDU?)

The Brief must include a discussion of the intended anaesthetic technique and a consideration for the Stop Before You Block process. More about this process on the next page on Sign-in.

2. Sign-in

Led by:

Lead Anaethetist

The Sign In must be performed by **at least two people involved in the procedure**.

For procedures performed under general or regional anaesthesia, these should include the anaesthetist and anaesthetic assistant.

For procedures not involving an anaesthetist, the operator and an assistant should perform the Sign In

When

A Sign In must be completed and documented on arrival at the procedure area or anaesthetic room.

What is discussed

The checks performed during the Sign In should include when relevant:

- Patient name checked against the identity band
- Consent form
- Surgical site marking if applicable
- Operating list
- Anaesthetic safety checks: machine, monitoring, medications
- Allergies
- Aspiration risk
- Potential airway problems
- Arrangements in case of blood loss

SIGN IN (to be read out loud)
Before induction on anaesthesia Responsibility of the senior anaesthetist
Has the patient confirmed his/her identity, site, procedure and consent? ☐ Yes
Is the surgical site marked? ☐ Yes/not applicable
Is the anaesthesia machine and medication check complete? ☐ Yes
Any special requirements for positioning or draping? ☐ No ☐ Yes
Does the patient have a: Known allergy? ☐ No ☐ Yes Difficult airway/aspiration risk? ☐ No ☐ Yes Risk of >500ml blood loss (7ml/kg in children)? ☐ No ☐ Yes, and adequate IV access/fluids planned
Name
Signature of senior anaethetist

Patient details	
Last name	
First name	
Date of birth	
NHS no./Hospital no.*	
Procedure	

*If the NHS Number is not immediately available, a temporary number should be used until it is

Stop Before You Block (SB4YB)

If a regional anaesthetic block is to be carried out, the Sign In **must be completed prior to provision of a block**.

Then, immediately before the block commences, the **block practitioner and assistant must simultaneously check the surgical site marking and the site and side of the block**.

SB4YB must be performed IMMEDIATELY before every block; if more than one block is being performed, a SB4YB must be performed before each.

3. Time Out

"It is the responsibility of each individual in the theatre team to stop what they are doing, listen quietly to the questions as they are being asked, introduce themselves and their role and respond appropriately if asked a question"

Led by:

Lead Surgeon

All team members involved in the procedure should be present at the Time Out.

While anyone in the team can lead or initiate the Time Out, good practice is for the Lead Surgeon to lead it.

The Lead Surgeon is always responsible for *signing* the Time Out.

When

The Time Out must be conducted immediately before skin incision or the start of the procedure.

When different operator teams are performing separate, sequential procedures on the same patient, a Time Out should be performed before each new procedure is started. This may be a modified version of the initial Time Out.

What is discussed

The team member leading the Time Out should verify that all team members are participating. This will usually require that they stop all other tasks and face the Time Out lead.

Asking all team members to introduce themselves is an effective way of doing this and is the first step of the Time Out process.

The Time Out should include, but is not limited to, checks of the following:

- Patient's name and identity band against the consent form
- The results of any relevant tests that must be present and available in theatre, e.g. imaging, hearing tests and eye tests
- The procedure to be performed
- Verification of surgical site marking

There are additional questions for the surgeon, anaesthetist and scrub assistant to consider (see full checklist on right).

The surgical pause: It is good practice for there to be a pause when the Time Out has been completed and the operator is about to put knife to skin, or equivalent. The pause is intended to be a final reflection before commencing a procedure.

TIME OUT (to be read out loud)

Before start of surgical intervention for example skin incision
Responsibility of the operating surgeon

Have all team members introduced themselves by name and role?
☐ Yes

Surgeon, Anaesthetist and Registered Practitioner verbally confirm:
☐ What is the patient's name?
☐ What procedure, site and position are planned?

Anticipated critical events
Surgeon:
☐ How much blood loss is anticipated
☐ Are there specific equipment requirements or special investigations?
☐ Are there any critical or unexpected steps you want the team to know about?

Anaesthetist (GA or sedation):
☐ Are there any patient specific concerns?
☐ What is the patient's ASA grade?
☐ Patient monitoring satisfactory

Nurse/ODP:
☐ Sterility confirmed
☐ Are there are equipment issues ?

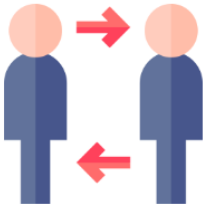
Has the surgical site infection (SSI) bundle been undertaken?
☐ Yes/not applicable
- Antibiotic prophylaxis within the last 60 minutes
- Patient warming
- Hair removal
- Glycaemic control

Has VTE prophylaxis been undertaken?
☐ Yes/not applicable

Is essential imaging displayed?
☐ Yes/not applicable

Name:	
Signature of operating surgeon:	

Change of staff



When there is a change of staff during a procedure, a new Time Out must be undertaken.

This includes conducting another instrument/swab count before continuing with the procedure. The Surgeon must be informed that a changeover count is being undertaken.

Changes of staff should be discussed during the Team Brief.

4. Sign out

Led by:

Lead Surgeon or most senior nurse

All team members involved in the procedure should be present at the Sign Out.

While anyone in the team can lead or initiate the Sign Out, best practice is for the Lead Surgeon or most senior nurse to lead it.

When

Sign Out checks should be conducted at the end of the procedure and before the patient is awoken from general anaesthesia/ sedation, before the patient leaves the procedure room.

What is discussed

Checks should include, but are not limited to:

- Confirmation of the procedure performed, to include site and side if appropriate
- Confirmation that instruments, sharps and swab counts are complete (or 'not applicable')
- Confirmation that any specimens have been labelled correctly, to include the patient's name and site or side when relevant
- Confirmation that: All IV administration sets and extension sets without active flow have been removed; Any multi-lumen connector without active flow through all its arms is removed; or, if this is not possible because a patient cannot tolerate even brief interruptions to essential drug or fluid delivery, that all arms have been adequately flushed; All cannulae have been identified and either removed or adequately flushed.
- Discussion of post-procedural care, to include any patient-specific concerns.
- Equipment problems for inclusion in the de-briefing.

SIGN OUT (to be read out loud)	
Before any member of the team leaves the operating room **Responsibility of the operating surgeon**	
Registered Practitioner verbally confirms with the team: ☐ Has the name of the procedure been recorded? ☐ Has it been confirmed that instruments, swabs and sharp counts are completed (or not applicable)? ☐ Have the specimens been labeled (including patient name)? ☐ Have any equipment problems been identified that need to be addressed?	
Surgeon, Anaesthetist and Registered Practitioner: ☐ What are the key concerns for recovery and management of this patient? ☐ Have all non-active IV devices or connectors been removed or adequately flushed?	
Name:	
Signature of operating surgeon:	

5. Debrief

Led by:

Lead Surgeon

All team members involved in the procedure should be present at the Debrief.

The senior operator and theatre team leader is responsible for escalation of any concerns raised to the appropriate lead. This may include the entry of incidents or near misses onto the Datix reporting system.

When

A de-brief must be performed at the end of all elective procedure sessions.

For example it can take place immediately following the Sign Out for the last patient on the list, before the patient leaves theatre.

What is discussed

For each patient, this should include a discussion of:

- Things that went well
- Any problems with equipment or other issues that occurred
- Any areas for improvement
- Anything which needs reporting or escalating to the theatre/ departmental management team
- Who will take responsibility for the action

You can record your observations on a personal record, a white board or annotated on the procedure list.

Bespoke checklists

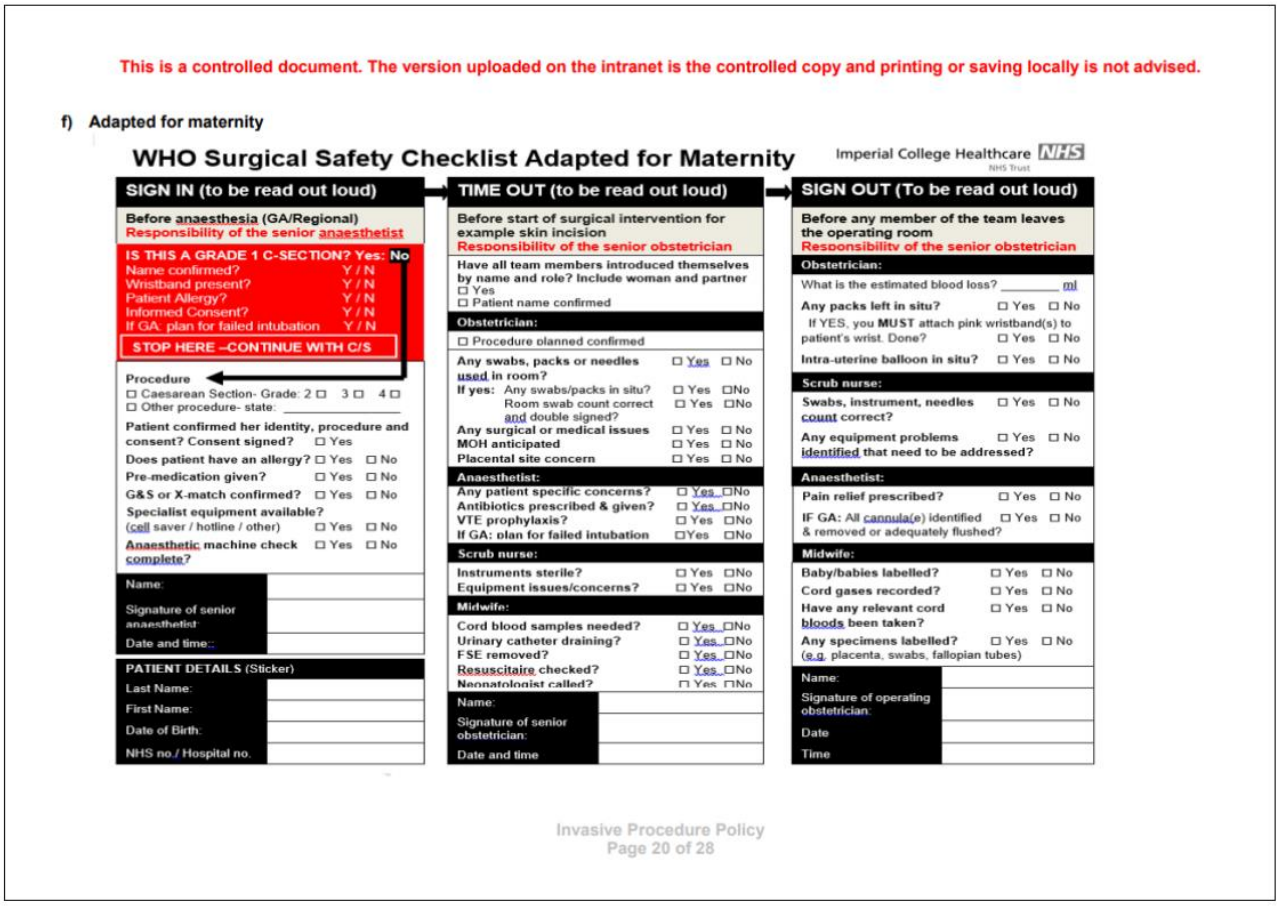
In some areas, there are bespoke checklists that are required.

Bespoke checklists are used in:

- Maternity
- Ophtalmology
- interventional radiology
- Cardiac Catheter Laboratory
- Endoscopy and bronchoscopy
- Gynaecology

If you are involved in procedures in different areas, please be aware if a bespoke checklist is required.

You will find all bespoke checklists in the Invasive Procedures Policy



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f) Adapted for maternity

WHO Surgical Safety Checklist Adapted for Maternity — Imperial College Healthcare NHS Trust

SIGN IN (to be read out loud)

Before anaesthesia (GA/Regional)
Responsibility of the senior anaesthetist

IS THIS A GRADE 1 C-SECTION? Yes: No
Name confirmed? Y / N
Wristband present? Y / N
Patient Allergy? Y / N
Informed Consent? Y / N
If GA: plan for failed intubation Y / N
STOP HERE –CONTINUE WITH C/S

Procedure
☐ Caesarean Section- Grade: 2 ☐ 3 ☐ 4 ☐
☐ Other procedure- state: _____
Patient confirmed her identity, procedure and consent? Consent signed? ☐ Yes
Does patient have an allergy? ☐ Yes ☐ No
Pre-medication given? ☐ Yes ☐ No
G&S or X-match confirmed? ☐ Yes ☐ No
Specialist equipment available? (cell saver / hotline / other) ☐ Yes ☐ No
Anaesthetic machine check complete? ☐ Yes ☐ No

Name:
Signature of senior anaesthetist:
Date and time:

PATIENT DETAILS (Sticker)
Last Name:
First Name:
Date of Birth:
NHS no./ Hospital no.

TIME OUT (to be read out loud)

Before start of surgical intervention for example skin incision
Responsibility of the senior obstetrician

Have all team members introduced themselves by name and role? Include woman and partner
☐ Yes
☐ Patient name confirmed

Obstetrician:
☐ Procedure planned confirmed
Any swabs, packs or needles used in room? ☐ Yes ☐ No
If yes: Any swabs/packs in situ? ☐ Yes ☐ No
Room swab count correct and double signed? ☐ Yes ☐ No
Any surgical or medical issues ☐ Yes ☐ No
MOH anticipated ☐ Yes ☐ No
Placental site concern ☐ Yes ☐ No

Anaesthetist:
Any patient specific concerns? ☐ Yes ☐ No
Antibiotics prescribed & given? ☐ Yes ☐ No
VTE prophylaxis? ☐ Yes ☐ No
If GA: plan for failed intubation ☐ Yes ☐ No

Scrub nurse:
Instruments sterile? ☐ Yes ☐ No
Equipment issues/concerns? ☐ Yes ☐ No

Midwife:
Cord blood samples needed? ☐ Yes ☐ No
Urinary catheter draining? ☐ Yes ☐ No
FSE removed? ☐ Yes ☐ No
Resuscitaire checked? ☐ Yes ☐ No
Neonatologist called? ☐ Yes ☐ No

Name:
Signature of senior obstetrician:
Date and time

SIGN OUT (To be read out loud)

Before any member of the team leaves the operating room
Responsibility of the senior obstetrician

Obstetrician:
What is the estimated blood loss? _____ ml
Any packs left in situ? ☐ Yes ☐ No
If YES, you MUST attach pink wristband(s) to patient's wrist. Done? ☐ Yes ☐ No
Intra-uterine balloon in situ? ☐ Yes ☐ No

Scrub nurse:
Swabs, instrument, needles count correct? ☐ Yes ☐ No
Any equipment problems identified that need to be addressed? ☐ Yes ☐ No

Anaesthetist:
Pain relief prescribed? ☐ Yes ☐ No
IF GA: All cannula(e) identified & removed or adequately flushed? ☐ Yes ☐ No

Midwife:
Baby/babies labelled? ☐ Yes ☐ No
Cord gases recorded? ☐ Yes ☐ No
Have any relevant cord bloods been taken? ☐ Yes ☐ No
Any specimens labelled? (e.g. placenta, swabs, fallopian tubes) ☐ Yes ☐ No

Name:
Signature of operating obstetrician:
Date
Time

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Example - the bespoke maternity checklist

The 5 Steps in Action

The 5 steps are well demonstrated in this NPSA (National Patient Safety Agency) video.

Click the image above to watch the NPSA (National Patient Safety Agency) film

Factors that increase the risk of unintentionally retained foreign objects

There are many different factors that can impact an invasive procedure and increase the risk of an unintentionally retained foreign object in the patient.

Patient factors

Operative factors

Human factors

Human factors play a significant role as well.

Think about your experience in the operating theatre. **What are some of the human factors that you think come into play that could increase the risk of mistakes being made?**

Human factors

The human factors that impact how our teams work effectively are complex.

But they have a huge impact on the safety of our procedures. **In fact, 80% of all healthcare litigation are due to human error, not a lack of technical skills.**

In the videos below, the Helping Our Teams Transform (HOTT) team discuss what human factors are, why they are so important to understand, and what we can do about them to work more effectively as a team.

In this video Sabrina Das, Consultant Obstetrician & Gynaecologist discusses what human factors are and why they have such an impact on invasive procedures.

Click the image above to watch the film on 'Human Factors'

In this video below, Fazeela Chharawala, HOTT Operational Director and Improvement Lead discusses what she has learned about teams from the HOTT programme.

Click the image above to watch the film on lessons learnt from HOTT

In this video below, Sadie Syed, Consultant Anaesthetist provides some advice for individuals and teams.

Click the image above to watch the film on 'Tips and Advice for HOTT'

Some of the human factors that could increase the risk of mistakes being made in the operating theatre:

- Stress
- Lack of accountability
- Communication breakdown
- Distractions
- Interruptions
- Fatigue
- Failure to follow policy and procedures
- Failure to understand each others roles in the perioperative environment
- Distractions and trying to do multiple jobs at the same time
- Lack of psychological safety to Speak Up

The HOTT Programme

The aim of The HOTT programme is to improve the safety, effectiveness and efficiency of our invasive procedures, by facilitating discussion and learning within multidisciplinary teams to help improve their teamwork, communication, and flatten hierarchy.

If you would like to participate in one of their courses or get involved, please visit their Intranet page.

We'll provide some more HOTT resources at the end of the module.

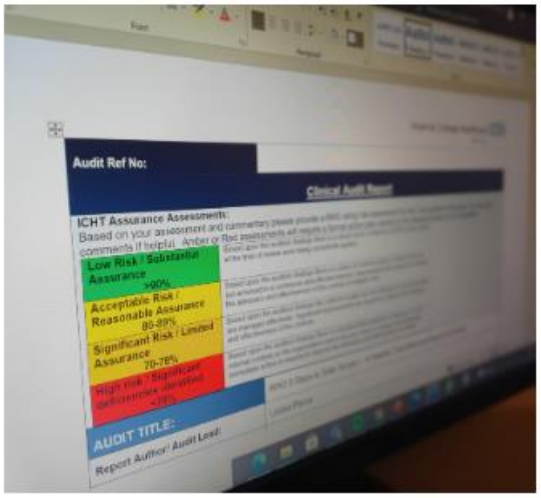
Question

We have regular audits of our compliance against the 5 steps.

In these audits we also look at the change of staff as a separate measurable.

So, of these 6 areas, in which do you think we have the highest compliance?

- ○ Brief
- ○ Sign in
- ○ Time out (first one)
- ○ Change of staff (second Time out) - where applicable
- ○ Sign out
- ○ Debrief



Answer

Our highest compliance is with the Sign In, for which we have 99% compliance according our most recent audit.

Question

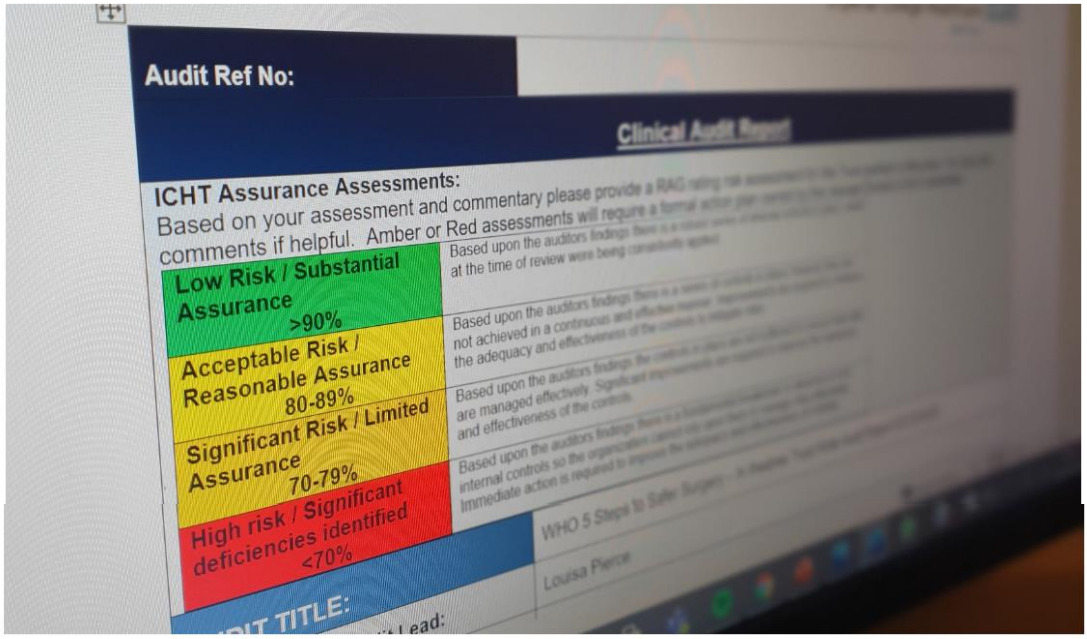
And of these 6 areas, in which do you think we have the *lowest* compliance?

- ○ Brief
- ○ Sign in
- ○ Time out (first one)
- ○ Change of staff (second Time out) - where applicable
- ○ Sign out
- ○ Debrief

Answer

Performing a Time Out when a change of staff occurs has the lowest compliance - **only 40% as of our last audit!**

Our Compliance against the 5 Steps to Safer Surgery



The Medical Directors Office regularly audits our compliance against the 5 steps and the most recent audit (2019/20) showed the following.

The Team Brief	Sign in	Time out (first one)	Change of staff
97%	99%	97%	40%

Sign out	Debrief
95%	94%

Areas for improvement

You can see that compliance starts to dip towards the latter stages of a case/list, with the Sign Out and Debrief compliance at 95% and 94% respectively. Still above 90% though.

Clearly, the most significant insight that the report provided was that there were improvements to make when **changing staff** during a procedure.

Key points include:

1. conducting another instrument/swab count before continuing with the procedure, and
2. making sure the Surgeon is informed that a changeover count is being undertaken.

However there were other specific areas that needed addressing. The following questions had **below 90%** compliance across the Trust:

- Was essential imaging displayed? - 87%
- If there was a change of staff, did all team members stop what they were doing for a 2nd Time Out? - 20%
- Was the primary operator present at the 2nd Time Out? - 20%
- Did the team conduct another instrument/swab count before continuing with the procedure? - 60%
- If there was a change of staff, was the Surgeon informed that a changeover count was being undertaken? 60%
- Was the Sign Out, led by the most Senior Operating Practitioner? 85%
- Did the most Senior Operating Surgeon sign the checklist? 88%

Are these also areas that you think might need improvement in your team(s)?

What other ways do you think your team could improve against the 5 steps?

For the full detail, including specialty-specific compliance you can download the full report.

Download report

Click on the image above to access the report.

Leadership

"One of the main things is leadership in theatre. You've got the Consultant Anaesthetist, Consultant Surgeon, senior scrub staff... Obviously they're all in charge of their own department, and their own equipment. But you need someone to lead everybody and make sure everyone's doing the same thing...

You need someone to take charge and say 'Everyone put everything down, stop what you're doing, we're doing the checklist.' And then going through all the questions properly, rather than as a tick box exercise."

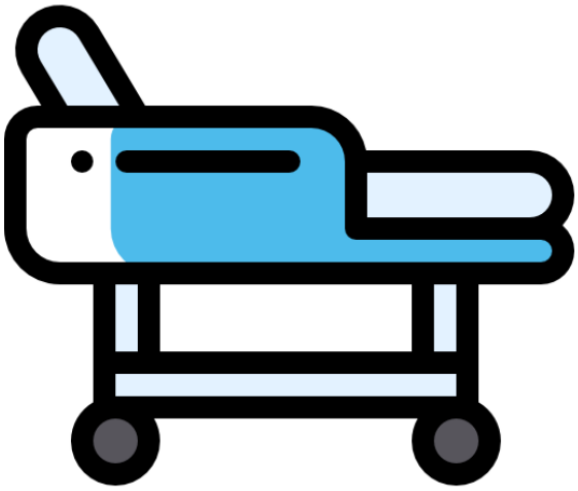
Kevin Tsang, Consultant Neurosurgeon

Click the image above to watch the film on advice on safer surgery

Question

In conversation with a day surgery patient during the admission process, the patient informs you that their escort can no longer take them home after the procedure. Where and when do you first escalate this?

- Escalate to the discharge team after the patient's surgery
- Escalate to the team during the Team Brief
- Escalate to the team during the Sign in
- Escalate to the team during the Time Out



Answer

You should always discuss with the postoperative destination with team during the Team Brief.

In this case, the patient may need a bed arranged, so this needs to be discussed.

Question

A patient is having a procedure on one side of their body. During the consent process that side has been marked.

At what other points should the laterality be mentioned or checked?

Tick all that apply.

- ☐ During Team Brief
- ☐ During Sign in
- ☐ During Time Out
- ☐ During Sign Out

Answer

Every Step is an opportunity to (re)check laterality, including Sign Out.

5 Steps to Safer Surgery - Some key takeways

The 5 Steps are not a tick-box exercise - they are a prompt for conversation and communication.

Human factors that result in poor communication and poor teamwork are significant causes of mistakes and incidents during invasive procedures.

Ideally, all members of the team should be present for all 5 steps.

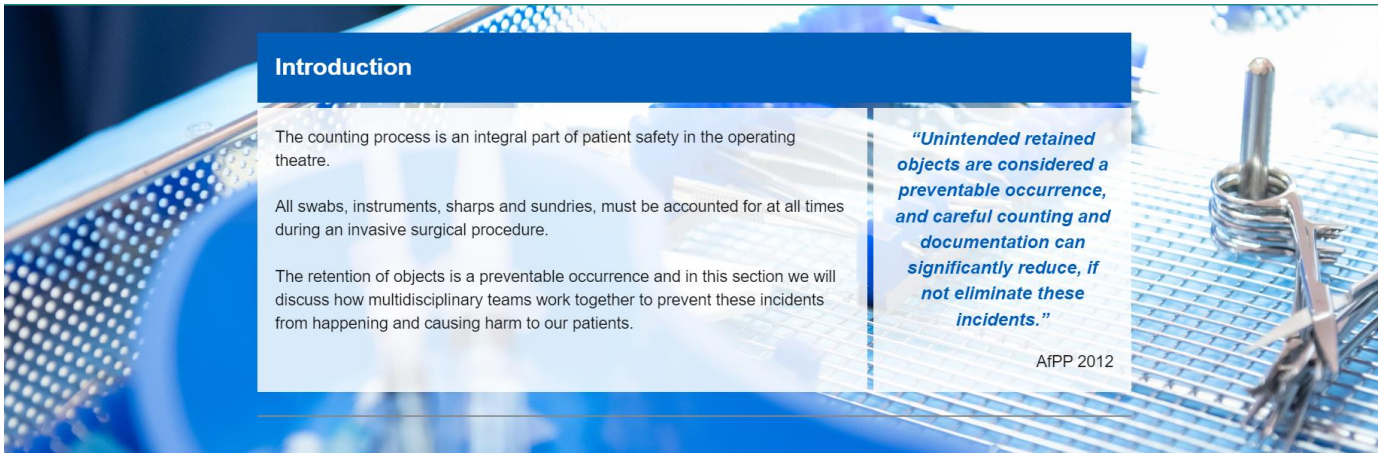
The change of staff is an important moment where a new Time Out should be done.

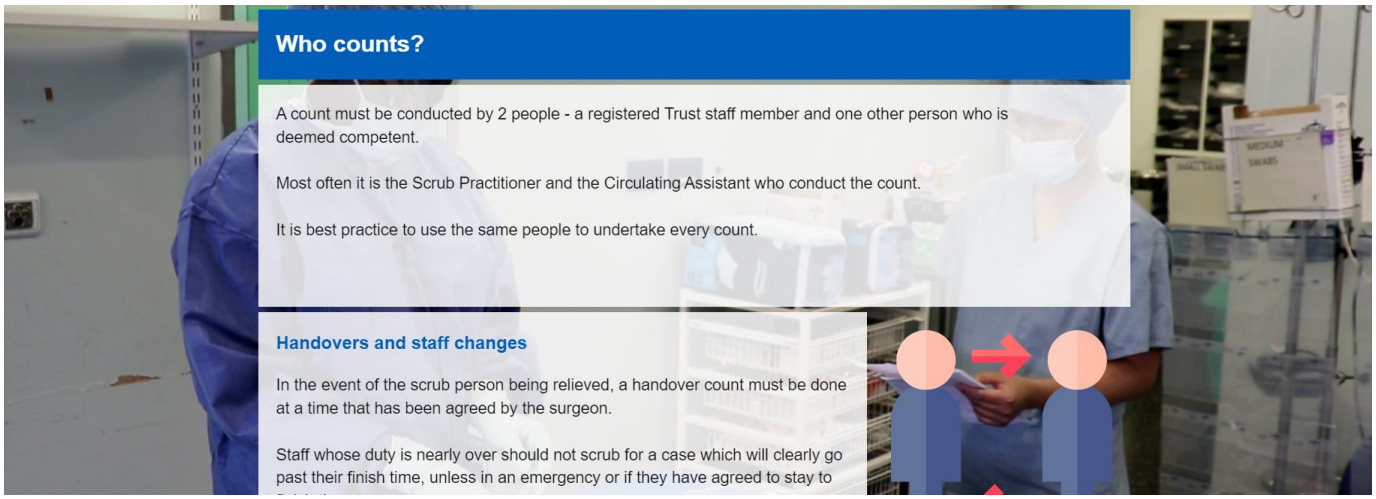
"You're a good surgeon. Everyone says that it could never happen to Kevin...

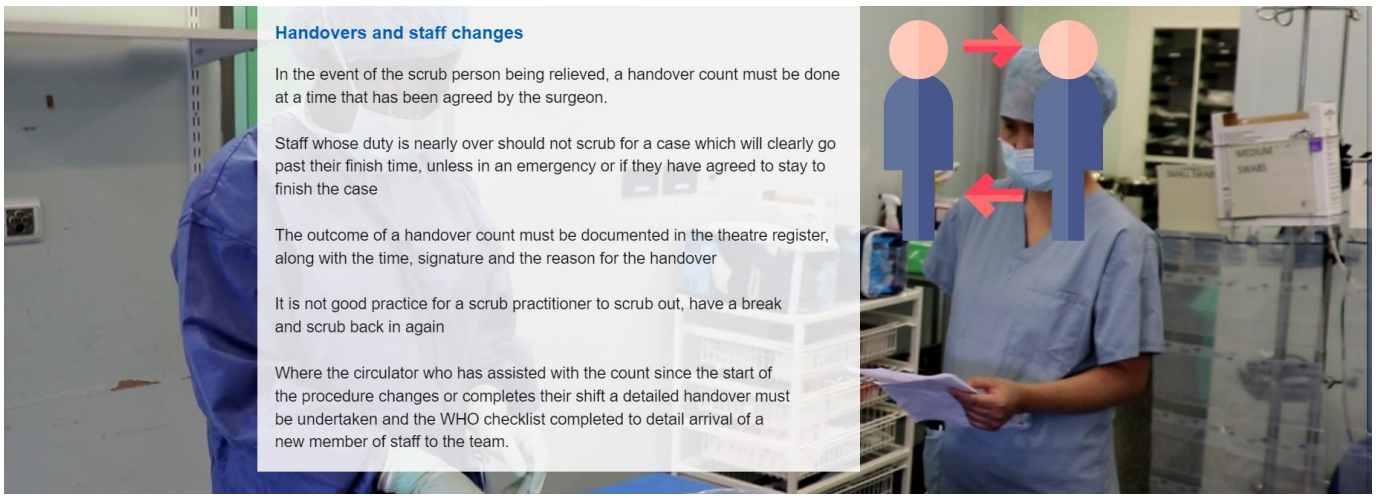
But it did. And that's the lesson for all surgeons in the Trust"

Associate Director of Safety and Effectiveness Justin Vale discussing a Never Event with Kevin Tsang, Consultant Neurosurgeon.

4. Counting swabs, instruments, sharps and sundries







When to Count

"If in doubt, count it"

Initial Count

The Initial Count takes place before the operations begins.

All swabs must be counted before the patient is brought to theatre and documented on the swab count board. The count must be initialled on the board by the person recording.

The Initial Count can also be describe as the 'pre-op' count.

Closure of cavity count

This is also sometimes called the First Count (not to be confused with the Initial Count).

On the closure of first cavity, all swabs must be counted and must match the tally on the board

Before beginning with the count, the Scrub practitioner should announce to the entire room: "Pause for the Gauze"

Subsequent counts

Subsequent counts can be done as often as required by the surgeon / scrub practitioner.

These might be done because of staff changes or any particular concerns, for instance perhaps before insertion of implants or mesh.

Skin closing count

The scrub practitioner must count all the swabs with a second counting partner for a fresh eyes approach, verifying the total with that on the swab count board and **must inform the surgeon once complete.**

Before beginning with the count, the Scrub practitioner should **announce to the entire room: "Pause for the Gauze"**

Final check

When the operation is over, ALL swabs (clean and used) must be put into the swab bags in the correct size order. These must be counted by the scrub practitioner and verified by the surgeon

The results must be added to the WHO 'sign out'.

Any intentionally retained swabs must be discussed, recorded in registry log and medical records and tagged.

The patients pink alert bracelet should not be removed until the swabs have been collected.

Counting Swabs

In the video below, Bertha Asante, Clinical Practice Educator, discusses how swabs are counted.

Click the image above to watch the film 'Counting Swabs'

Scenario:

A count at closure of the skin reveals a discrepancy. A medium swab is missing.

The surgeon has searched the patient and the surgical field. You've checked the instrument trolley. But still no swab.

Where else could you look?

Answer

There are many places that a swab could be missing. You could also check:

- Bins
- Under the operating table
- Under the instrument trolleys
- In the drapes
- Team members might be standing on the missing swab

Counting Instruments

In the video below, Bertha discusses how instruments are counted.

Click the image above to watch the film 'Counting Instruments'

Counting Sharps

In the video below, Bertha discusses how sharps are counted.

Click the image above to watch the film 'Counting Sharps'

Scenario: A needle has gone missing during the count. What might you do to find the missing needle?

Write down some of the things your might do below, or places you might search?

Answer

If a needle is missing you could:

- Check the corners of the sharps box
- Use a magnetic/medical 'needle finder'
- Check the tips of needle holders
- Check the ends of the suture strings

The Count Board

Click the image above to watch the film 'The Count Board'

In the middle of the procedure the surgeon requests an abbocath cannula. Do you need to document this anywhere?

- ○ No – it's too big an item to go missing
- ○ Yes – document this on the Count board
- ○ Yes – document this on a piece of paper

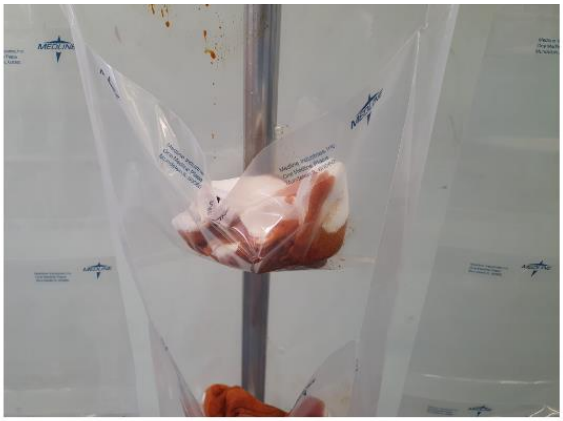
Answer

Anything added to the field should be documented on the Count Board.

An added abbocath cannula should be added to the Extras section.

The Swab Bag/Tray

- Only one swab must be placed in each compartment of the swab tray/bag
- The size of the compartment is relative to the size of the swabs to go into them e.g. small, medium, large
- The circulating practitioner must check that the swabs have Raytec® and that they are put in the right sized compartment
- All instruments, swabs, sundries, and needles must remain in the theatre until the case is completed. Then all used equipment must be removed from the theatre before the next case starts. The bags in theatre should be new and empty prior to a case starting.
- If the swabs need to be weighed for blood loss, this should be undertaken after insertion into the swab tray, using the related weighing scales



Temporarily using swabs for packing

As a team, what do we need to do when the surgeon is temporarily using swabs for packing to stop bleeding?

Place the following actions in the order they should take place.

The order that these actions should take place are as follows:

1. Surgeon communicates the placement of swabs
2. Scrub practitioner confirms aloud the number and type of swabs being used
3. Circulator documents on the Count board
4. When removed from the patient, the circulator updates the Count board

The scrub team has requested extra blade, pack of swabs and some fluid.

Which of the following is best practice?

- ○ Open everything first and then document all of the additions together.
- ○ Open one item and document on the count board before moving on to the next item.
- ○ Document all needed items on the Count Board first, and then open them one by one.

Answer

Any items introduced to the surgical field should be documented on the Count board straight away. In this situation, you should open one item and document it on the board before opening the next item.

Intentionally leaving foreign objects in patients (post-operative packing)

There are times that we may *intentionally* leave a foreign object in the patient.

What are some of the things that we need to do in this situation?

Answer

If a foreign object is intentionally left in the patient the team must:

- Document in the patient's electronic patient record
- Communicate with the clinical team
- Inform the patient
- If a vaginal/ abdominal pack is left in situ, then a pink safety alert bracelet must be fitted securely to the patient's limb

What to do when we intentionally leave foreign objects in the patient

Document in the patient's electronic record

Make sure to include:

- Rationale for retained pack
- Timescale and process for removal
- All communication regarding the retained pack

Communication with the clinical team

Make sure you inform the MDT team about the retained pack, including when you intend to remove it.

Communication with the patient

Inform the patient (or next of kin where appropriate) why a pack has been retained and when it will be removed.

Communication with the patient

Inform the patient (or next of kin where appropriate) why a pack has been retained and when it will be removed.

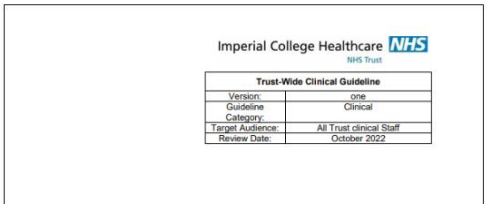
Vaginal/abdominal pack left in situ

If a vaginal/ abdominal pack is left in situ, then a pink safety alert bracelet must be fitted securely to the patient's limb

Read the guidance

Please refer the clinical guidance on the Intranet for complete detail on intentionally retained foreign objects.

Read guidance



In what situations is it acceptable to *not* perform an Initial count before starting the procedure?

Write your answer below and click Confirm.

Answer

The only time it is acceptable to not to perform the initial count is if the case is an EMERGENCY (NCEPOD-1 limb or life threatening). For example, a crash caesarean section or ruptured aneurism.

However, any window of opportunity should be used to count swabs.

At a bare minimum, the circulator should record how many bundles of swabs have been given to the scrub person and an X-ray performed as soon as possible after the closure of the wound.

Count discrepancies

1. Inform the surgeon

The scrub practitioner must inform the surgeon of the count discrepancy as soon as possible.

2. Surgeon searches the immediate surgical field

The surgeon must first do a thorough search of the wound and immediate surgical field.

3. Search the immediate vicinity

If the item is not found in the immediate surgical field, then the team must search the immediate vicinity.

This should include checking:

- folds in drapes
- in-between the surgeon/obstetrician and the table
- the floor, including under the bed and under feet and then surrounding areas
- all rubbish bags, etc must be opened and the contents checked
- all bagged swabs must be checked

4. Arrange x-ray

If the missing item is not found, the surgeon needs to ensure that an x-ray of the patient is undertaken or use the image intensifier to check that the item has not been retained.

If the item cannot be found

If the items cannot be found, this must be documented in:

- Patient's care plan
- Operating notes and electronic patient record
- Theatre register

The theatre co-ordinator should be informed and a DATIX form completed

The number from the Datix form must be added to patient's documentation in the notes, registry log and on the electronic medical record

The surgeon must remain in the operating theatre until the item is found or until it is determined with certainty that the item is not in the patient.

The anaesthetist should maintain the anaesthetic until such time as the swabs is found or the x-rays have been reviewed

Debriefing a Never Event

The following case study is the result of HOTT conversation with the multi-disciplinary team to debrief a real Never Event that occurred.

What happened

A complex operation to remove an epiglottic tumour was planned. The team brief anticipated a long procedure with multiple steps. Every section required swab counts, and sets kept available in case of further need. The patient was intubated through his nose, and converted to a tracheal stoma with an endotracheal tube soon after.

The tumour was removed using a new robotic device and frozen sections sent to pathology. Whilst waiting for results, neck dissection was carried out. The frozen sections revealed positive margins, necessitating further robotic resection. Overall, 22 specimens were sent, requiring considerable concentration and labelling. The operation finished at 1715h and the patient left theatre at 1800h. The breathing tube was converted to a tracheostomy at the end.

At the end of the operation, the swab count was confirmed to be correct, and the Sign Out took place.

A swab was then used to clean the mouth and absorb dry blood. This swab was unintentionally retained and later recovered on the ITU when the patient spat it out. The patient recovered well from the operation with no evidence of harm from the retained swab.

Themes

The following themes emerged from the debrief.

- We need a culture of respect across professions, and psychological safety to speak up
- Blame and shame make it difficult to learn
- Top-down decisions and scrutiny of efficiency
- Pressure - internal and external - leads to errors
- Conversations are needed in order to learn
- Respect for the WHO checklist, especially Sign Out and Debrief. A culture of quiet and "Pause for the Gauze"

We Must RESPECT & RECOGNISE ROLES.

All staff must feel free to SPEAK UP and be heard.

"Sometimes we feel intimidated by our colleagues. We need to be bold. The surgeons often grab things off the scrub table - this shouldn't happen. It is disrespectful to the scrub nurse."

"When I point out issues like a patient arriving with the wrong name label, it is viewed as the anaesthetist being pedantic. When you feed back to the ward, they say it isn't their job to check the label."

"The scrub nurse nowadays does not call the count out loud anymore. They do it quietly between the circulator and the nurse."

Staff already feel a deep sense of guilt after the event.

Support is needed to move on from shame to learning.

There is NO ROLE FOR BLAME.

"The trust is looking to assign blame. The process of requesting statements is done in a harassing and punitive way, rather than a process to seek information to learn."

"This is a good team. The best I have worked in. I just don't think we deserve this reputation for having a Never Event."

"We were all fearing what this event might mean for us. We were told there would be 'consequences'."

Knowledge of HUMAN FACTORS can help teams recognise vulnerability points and develop error wisdom.

"There is a pressure to succeed because the robot is a new device."

"As a fairly new consultant I feel a pressure to really cram the list full and this in turn leads to rushing."

"We cut corners. The count is done in a rush, on the table, when the swabs should all be put in the bags on the rack."

FACTOR TIME for DEBRIEF in the list BOOKING

"This conversation would have been very helpful closer to the event. The past month has been really difficult for us as a team and as individuals."

"It was even a struggle for us all to get together today to talk about this event together. We should make the time to learn. The debriefs never happen after a list - it is a missed opportunity for a team conversation and learning."

"Conversations are a positive start. We have never had this before."

Emphasis on EFFICIENCY and change without CONSULTATION has resulted in undesired effects.

"Some rules are just imposed clumsily onto us."

"There was a decision to move the surgical admissions unit to a smaller space. It now takes ages to preassess the patient. The rooms are crowded and as a result the list usually starts late."

"When our efficiency is scrutinised, this affects the way we do things. Do we want quantity or quality?"

The entire team needs to OWN THE CHECKLIST and PAUSE for count and for Sign Out.

"I am guilty of not pausing for the Sign Out. I tend to rush. We all move on to do our own thing at the end."

"I have learnt that the Sign Out process should have as much emphasis as the Time Out. It is easily done badly, but just as easy to change practice and do it well - actual pausing to do that final communication as a team. "

"There are lots of things happening at the same time. The list had overrun and everybody was tired. This is when things go wrong. "

The Surgeon/Obstetrician's Responsibilities

Lead Surgeon and Major Trauma Director Mr. Shehan Hettiaratchy discusses the role of surgeons, and other responsible clinicians, in facilitating the counting of swabs.

Click the image above to watch the film on 'The Surgeon/Obstetrician's Responsibilities'

Ways that surgeons, and other responsible clinicians, can help with counts

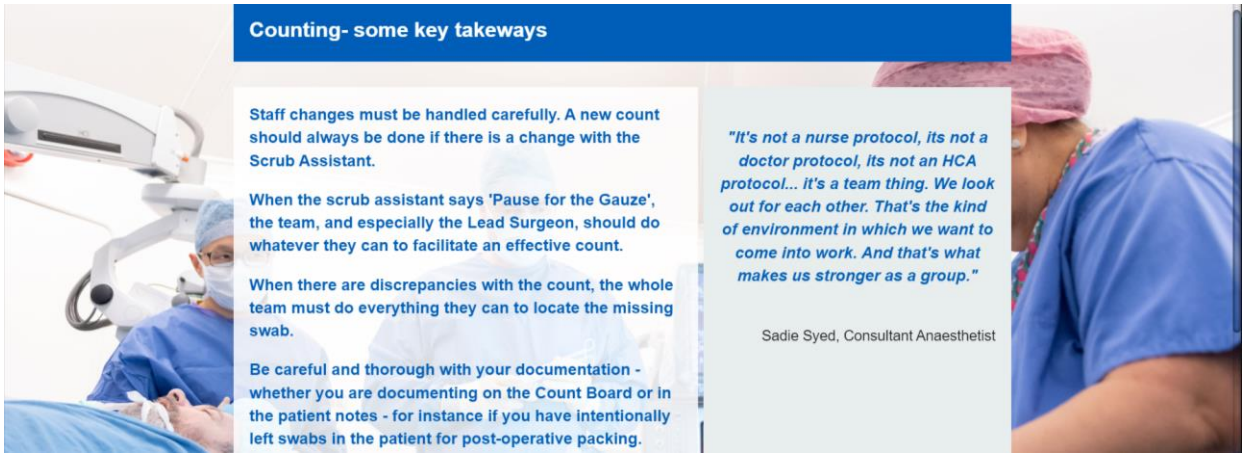
- Respecting the time required by the scrub practitioner when doing a count – for instance ensuring there are no distractions or interruptions during the count
- Removing unnecessary swabs and instruments from the surgical field at the start of the count
- Accounting for and communicating any surgical items remaining in the surgical field during the count
- Clearly communicating the placement of swabs in the cavity so that it can be documented on the Count Board
- Acknowledging when the Count is complete and correct

Reporting Incidents

In order to make improvements to what we do and how we work, we need to know what is happening on the ground.

In the video below, Sadie Syed and Fazeela Chharawala from the HOTT programme discuss the importance of incident reporting.

Click the image above to watch the film on the importance of incident reporting



If you do not work in maternity, this is the end of the module.

To complete the assessment please return to the pre-assessment system.

If you work in maternity please read the remaining 2 pages.

Maternity-specific guidance

In Maternity, there are a number of variations to the WHO checklist and to the processes around counting.

The WHO maternity checklist

The WHO surgical checklist has been adapted to

- ask the question regarding packs that are being introduced into the theatre from outside
- ask for a pink wristband to be attached to the patient's wrist if a pack is inserted. The intention is that this wristband can only be removed once the pack has been removed

Staff must fully complete the documentation proformas for Caesarean section, instrumental delivery and perineal repair as appropriate, particularly in relation to swab/tampon and needle counts.

The most senior anaesthetist in theatre is required to complete the “sign in”.

The most senior obstetrician is required to perform the “time out” and “sign out”.

The obstetrician must perform the final swab count with the scrub nurse/runner once the surgical procedure is complete and they have “unscrubbed”.

A new WHO checklist must be commenced when starting a new procedure which has become necessary immediately following completion of the "sign out" on the initial WHO checklist.

f) Adapted for maternity

WHO Surgical Safety Checklist Adapted for Maternity — Imperial College Healthcare NHS Trust

SIGN IN (to be read out loud)

Before anaesthesia (GA/Regional)
Responsibility of the senior anaesthetist

IS THIS A GRADE 1 C-SECTION? Yes: No
Name confirmed? Y / N
Wristband present? Y / N
Patient Allergy? Y / N
Informed Consent? Y / N
If GA: plan for failed intubation Y / N
STOP HERE –CONTINUE WITH C/S

Procedure
☐ Caesarean Section- Grade: 2 ☐ 3 ☐ 4 ☐
☐ Other procedure- state: _____

Patient confirmed her identity, procedure and consent? Consent signed? ☐ Yes
Does patient have an allergy? ☐ Yes ☐ No
Pre-medication given? ☐ Yes ☐ No
G&S or X-match confirmed? ☐ Yes ☐ No
Specialist equipment available? (cell saver / hotline / other) ☐ Yes ☐ No
Anaesthetic machine check complete? ☐ Yes ☐ No

Name:
Signature of senior anaesthetist:
Date and time::

PATIENT DETAILS (Sticker)
Last Name:
First Name:
Date of Birth:
NHS no./ Hospital no.

TIME OUT (to be read out loud)

Before start of surgical intervention for example skin incision
Responsibility of the senior obstetrician

Have all team members introduced themselves by name and role? Include woman and partner
☐ Yes
☐ Patient name confirmed

Obstetrician:
☐ Procedure planned confirmed
Any swabs, packs or needles used in room? ☐ Yes ☐ No
If yes: Any swabs/packs in situ? ☐ Yes ☐No
Room swab count correct and double signed? ☐ Yes ☐No
Any surgical or medical issues ☐ Yes ☐ No
MOH anticipated ☐ Yes ☐ No
Placental site concern ☐ Yes ☐ No

Anaesthetist:
Any patient specific concerns? ☐ Yes ☐No
Antibiotics prescribed & given? ☐ Yes ☐No
VTE prophylaxis? ☐ Yes ☐No
If GA: plan for failed intubation ☐Yes ☐No

Scrub nurse:
Instruments sterile? ☐ Yes ☐No
Equipment issues/concerns? ☐ Yes ☐No

Midwife:
Cord blood samples needed? ☐ Yes ☐No
Urinary catheter draining? ☐ Yes ☐No
FSE removed? ☐ Yes ☐No
Resuscitaire checked? ☐ Yes ☐No
Neonatologist called? ☐ Yes ☐No

Name:
Signature of senior obstetrician:
Date and time

SIGN OUT (To be read out loud)

Before any member of the team leaves the operating room
Responsibility of the senior obstetrician

Obstetrician:
What is the estimated blood loss? _____ ml
Any packs left in situ? ☐ Yes ☐ No
If YES, you MUST attach pink wristband(s) to patient's wrist. Done? ☐ Yes ☐ No
Intra-uterine balloon in situ? ☐ Yes ☐ No

Scrub nurse:
Swabs, instrument, needles count correct? ☐ Yes ☐ No
Any equipment problems identified that need to be addressed? ☐ Yes ☐ No

Anaesthetist:
Pain relief prescribed? ☐ Yes ☐ No
IF GA: All cannula(e) identified & removed or adequately flushed? ☐ Yes ☐ No

Midwife:
Baby/babies labelled? ☐ Yes ☐ No
Cord gases recorded? ☐ Yes ☐ No
Have any relevant cord bloods been taken? ☐ Yes ☐ No
Any specimens labelled? (e.g. placenta, swabs, fallopian tubes) ☐ Yes ☐ No

Name:
Signature of operating obstetrician:
Date
Time

Counting swabs

All swabs, instruments, sharps and sundries should be counted at the start of the procedure by the operator with a second person. In maternity, this should be a midwife support worker (MSW) or other responsible person to provide a fresh set of eyes and minimise confirmation bias.

Small 10X10cm swabs must NOT be used in delivery rooms.

Tampons must only be used if the tail is left outside and is clipped whilst in-situ.

In the delivery room, this information should be documented on the whiteboard with the mother's initials and hospital number, by the person who opens the packet. At the end of a procedure, swabs (as well as needles and instruments) must be counted by the operator (doctor or midwife) with a second person (midwife or maternity support worker (MSW)), before they can be disposed of.

The operator is responsible for all swabs/tampons and vaginal packs.

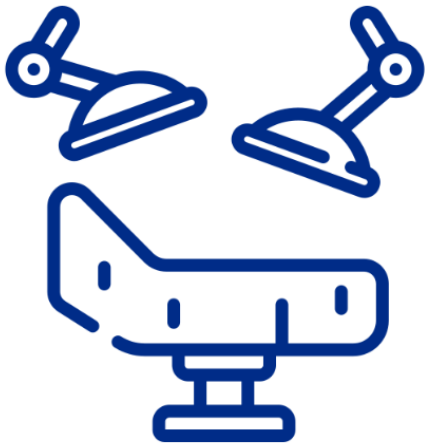
If the operator is obliged to leave the room before the final count (eg. when transferring the patient to theatre, or when attending another emergency), the swabs must be counted by two people to tally with the whiteboard count and the count must be recorded in the health records. The room can be cleared but the contents must not be discarded until the operator has agreed the count with another person.

The whiteboard must not be cleaned until the midwife in charge of the case has seen it and confirmed that the tally has been recorded in the electronic health records.

Transferring the patient to theatre

In the event that a woman must be transferred from a delivery room to theatre:

- A swab count should be completed prior to transfer of a woman from the delivery room to theatre.
- Any swabs or tampons used during delivery must be tailed and clipped outside and must be removed before transfer to theatre
- **ONLY vaginal packs with a tail** must be used to stem vaginal blood flow whilst awaiting transfer to theatre.
- The presence of a vaginal pack **MUST be handed over to theatre staff.**
- Vaginal packs must be removed on arrival into theatre by the surgeon and checked with the circulating person, added to the theatre count board, and be stored in a separate container.
- A new WHO checklist must be commenced when starting a new procedure which has become necessary immediately following completion of the "sign out" on the initial WHO checklist



This is the end of the module.

To complete the assessment please return to the pre-assessment system.