Reconciliation of Items in Prevention of Retained Foreign Objects

This standard supports safe, consistent and efficient practice in accounting for all items used during invasive procedures and in minimising the risk of them being retained unintentionally.

The processes outlined in this standard should ensure that all items are accounted for and that no item is unintentionally retained at the invasive site, in a body cavity, on the surface of the body, or in the patient's clothing or bedding. This standard represents the gold standard in count procedure and practice. The need to prevent the rare occurrence of unintentional retention of items must be balanced against the need to support timely and efficient surgery and other procedures. Enforcing counting procedures where the possibility of retained objects is unlikely, will be counter-productive to engagement with safety procedures and may makes processes less efficient.

The prevention of retained foreign objects is a shared responsibility and the risk of occurrence is reduced through education, effective teamwork and processes.

These standards apply wherever and whenever invasive procedures are carried out. This includes all aspects of maternity care, outpatient and ward-based procedures.

This standard includes all potentially retainable items used in procedures, as well as those used as part of anaesthesia and sedation, e.g. throat packs placed by the anaesthetist during oral or nasal surgery. The AfPP Standards do not extend to all invasive areas and so remains aligned.[73]

Full Count procedures:

For all invasive procedures in any environment where swabs, sharps and instruments are used and where there is a cavity large enough to retain them, e.g. operating theatres; labour suite rooms; and in areas where the procedure provides a surgical cavity in scenarios such as interventional radiology hybrid procedures, pacemaker insertion or the emergency department.

Type of count	Which procedure?
Full Count	Major procedures (other than interventional radiology (IR)) All maternity areas including delivery room Any procedure where a cavity entered
Proportionate Count	IR areas and minor procedures

A full count may not be necessary in some settings, for example procedures performed via incisions too small to retain objects, via needle punctures, or via natural orifices without the insertion of swabs. Whilst it is still essential to prevent retained foreign objects in these settings (e.g. wire count), the complexity is less, and a full count would be irrelevant and time-consuming.

Standards for organisations

- Organisations must have processes in place to ensure the appropriate reconciliation of all items and equipment used during invasive procedures.
- The methods and documentation used for counting should be both consistent and standardised within an organisation for all count procedures.
- All team members involved in counting and reconciliation should have received appropriate training and competency assessment.
- Organisations should agree a generic list of items to be included in the counts in specialty areas. This list should be adapted, reviewed, and revised in line with local circumstances and the specialty, taking into account analysis of benefits, risks and local, national and international safety incidents, e.g. the inclusion of specimen retrieval bags; liver retraction devices; vaginal swabs and tampons; radiological sheaths, catheters and guide wires.

- Instrumentation and new equipment must be risk assessed. This includes an understanding of the labelling/ names, parts and integrity of all instruments/items/equipment used in invasive procedures. These must be checked in a proportionate manner before and after use by staff with appropriate training.

What?

- The count should include any item that enters the procedural field, including swabs, sharps, disposable items and instruments and their constituent parts.

Who?

- Two trained staff should perform the count. One should be GMC (General Medical Council), GDC (General Dental Council), NMC (Nursing and Midwifery Council) or HCPC (Health and Care Professions Council) registered; any unregistered staff should be assessed as competent.
- Count competencies should be maintained. See Online Sequential Step Implementation portal
- All scrub practitioners / operators' assistants and operators in the full count areas must be familiar with the count as it applies to their area. Other members of staff need an understanding of the basic count method outlined below to support those performing the count.

When?

- A pre-procedure count should be performed prior to commencing a procedure to establish a baseline. This should include any existing intentional foreign objects in situ and anaesthetic packs.
- An intra-procedure count should be performed when appropriate: before intentionally packing a cavity and when there is a change in scrub personnel.
- A first count should be performed (as appropriate to the procedure):
  - Before closure of a cavity or major organs
  - Before closure of the first layer of muscle, e.g. during spinal and joint replacement surgery
  - Before wound closure begins
- The final count should occur at the beginning of closure of the skin or before the end of the procedure. This point should be identified to the team (e.g. 'pause for gauze') as a point when the scrub team need time and concentration to count carefully. The end is when 'final count complete' is announced. This is confirmed at Sign Out (Sequential Step 7).
- A count should be performed any time a discrepancy is suspected that cannot be readily checked.
- A count should be performed if there is a changeover of either the scrub or circulating practitioner.

How?

- Staff should be allowed to count without distraction unless there is urgent, unforeseen clinical need.
- If the count is interrupted, it should restart from a point before the interruption.
- The members of staff should ideally be the same throughout the procedure, but changes of scrub practitioner or operator's assistant may be required. In the event of a staff handover being necessary, a full count should be undertaken to account for all items at that point.
- In the event of failed reconciliation, the operator must be informed, the count repeated, and the theatre and operating site searched. If unsuccessful, locally agreed procedures on the use, and interpretation of x-rays must be followed.
- A count board must be used, with standard notation and documentation.
- Count boards should be of sufficient size and positioning to be readily visible and salient at all times.
- Locally adapted count boards should be used in specialist areas to include specialty specific items.
- Organisations should have systems in place to avoid unnecessary duplication of documentation.
- The count marks should be easily visible, legible, and written horizontally on the board. The count board marking, and symbol practice should be consistent across the organisation.
- The total number of items currently in use and those counted out, should be always clearly legible and understandable. No extraneous/additional markings in the running total should be made.
- All items should be visually inspected to ensure they are intact after removal from the body.
- The count board must have specific areas for noting the numbers of each type of item in use and the count (both in and out) should follow a standardised order.

Swabs

- Swabs should be counted in and out in multiples of five and should include the red tag used to bundle the swabs into packs of five.
- If present the integrity of tapes or tails that are part of swabs or packs must be visually checked when the items are being counted.
- Instrument sets should not contain swabs.
- All packs and swabs used in invasive procedure fields must contain a radio-opaque strip.
- Throat packs placed by the anaesthetist must be in the count and have a radio-opaque strip. The tail may be used to secure the pack to the tube and a throat pack sticker should be used. The presence of a throat pack must be communicated to the team following insertion and its removal confirmed at the end of the procedure.

Green swabs or gauze are used in anaesthesia for a) pressure padding (e.g. around 3 way taps or tube ties) b) absorption (e.g. failed cannulation, saliva, ultrasound gel) and c) to stop a drape sticking to a tracheal tube. Green swabs represent a risk as they do not have a radio-opaque line and they can end up mixed in the count.

Local risk assessment should take place to reduce risk of green gauze retention. Using other items designed for purpose, e.g. soft band tube ties should be procured/considered.

- The mouth represents a danger zone. Green gauze should never be used to stabilise an airway.
- Overzealous use of green swabs is discouraged.
- Blue swabs should be used for surface dressings or on a closed wound.
- Packs and swabs should NEVER be cut.
- The size, colour and number of swabs to be included in standard packs for procedures should be locally agreed.
- Standardised terminology should be used for swabs and packs.
- A 'Pack' used as a packing material usually has a tail and is bigger than a large swab. Packs must never be tied together. e.g. trauma and maternity.
- A dressing pack is a pre-prepared sterile pack used for some procedures. Dressing packs should always contain radio-opaque swabs and initiate a count whether proportionate or full.
- The dry weight of swabs and packs should be known by weighing dry in order to accurately calculate estimated blood loss.
- Risk assessment should identify when and if it is acceptable for non-radio-opaque swabs to be used in invasive areas and should define the size and colour of swabs that can be used for this purpose, e.g. for urinary catheterisation and anaesthetic use.
- Only the minimum number of items necessary, including swabs, should be opened prior to any procedure.
- Some packing materials are absorbed by the body. These should be documented but do not need to be counted. See Online Sequential Step Implementation portal for materials/items used for packing.

Table: Details on types of swabs, how they differ and their subsequent risks.
This is a guide, as local procurement may vary.

Type of swab	Radio-opaque	Use	Routinely counted	Risks
White Radio opaque swabs Small Swabs 15x10cm Med Swabs 30x30cm Large Swabs 45x45cm	Yes - which allows detection in the event of failed reconciliation. Radio-opaque swabs are more expensive. This is still reliant on a robust count process to identify missing items	In all cavity or invasive procedures	Counted in 5s	Should never be cut. Large numbers may be used that all require counting.
Large Pack with radio-opaque line (has a tail)	Yes - which allows detection in the event of failed reconciliation. Radio-opaque swabs are more expensive. This is still reliant on a robust count process to identify missing items	In all cavity (maternity/trauma/ HPB) or invasive surgery	Counted	Should never be cut. or tied together. Used in high blood loss situations e.g. trauma or obstetrics Should follow process for intentionally retained pack if packing is left in situ
Green pack with radio-opaque line (has a tail)	Yes - which allows detection in the event of failed reconciliation. Radio-opaque swabs are more expensive. This is still reliant on a robust count process to identify missing items	As a throat pack for some surgeries	Counted	Airway obstruction
Lintines and patties	Yes- which allows detection in the event of failed reconciliation. This is still reliant on a robust count process to identify missing items	Neurosurgical and spinal surgery	Counted in 5s or 10s.	Should never be cut. or tied together. Large numbers may be used
White swabs	No- radio-opaque line Must never be used in a cavity or major surgical procedure. If in procedural field, risk assessment must be completed	When the procedure is performed outside the operating theatre and through a needle, small wound or natural orifice (e.g. for Interventional Radiology or flexible cystoscopy in outpatients).	Not counted - these are areas where a **proportionate** count is used	If a bigger incision is made or cavity entered - they are not radio-opaque and radio-opaque swabs should be used
Blue swabs	No- radio-opaque line Must never be used in the surgical/ procedural field until wound closed	Surface wound dressings (e.g. ortho and plastics)	Not counted	If mixed with the count, they are not radio-opaque and cannot be detected with x-ray
Green swabs	No- radio-opaque line Must never be used in the surgical/ procedural field.	Anaesthesia a) pressure padding e.g. around 3 way taps or tube ties and b) absorption e.g. failed cannulation, saliva, ultrasound gel. C) To stop a drape sticking to a tracheal tube.	Not counted	If mixed with the count, they are not radio-opaque and cannot be detected with x-ray

Sharps

- Suture and hypodermic needles should all be counted.
- Suture packs should be retained for cross-checking and should be included in the count.
- Organisations must have adequate processes in place for safe management of sharps.

Instruments and disposable items

- Instruments should be counted using the checklist for that set when they are part of a set.
- Supplementary single-packed instruments should be counted separately.
- Instruments with multiple parts should be counted as one instrument (but confirmed to be intact).
- Disposable items, e.g. Bert bags for laparoscopic surgery, should be counted on and off the procedure field in the same way as instruments and sharps.
- Both single use and re-usable items should be counted.

Proportionate count procedures

- When procedures are performed outside of theatres, via incisions too small to retain objects, via needle punctures, or via natural orifices without the insertion of swabs; a proportionate count to confirm the presence of intact equipment and the removal of any wire and ancillary equipment, such as sheaths, may be sufficient. This will apply to the majority of radiology, cardiology, endoscopy, wards, outpatient areas, emergency department and minor procedures.
- However, if a procedure in this area involves a cavity large enough to retain an item, such a proportionate count will be insufficient.
- There is no requirement to use a count board, but the completion of these checks must be documented in the patient notes.

The principal risk in this situation is the retention of guide wires and the detachment of parts of instruments or other devices during use. Verbal checks should be performed for an abbreviated count.

- A two-person verbal confirmation of the removal of any wires used should occur.
- Lone insertion of lines should not occur. An assistant is always needed. It is a quality standard to insert lines with two practitioners to assure sterility, so this will assist in the required checks.
- A two-person verbal confirmation that any equipment used is intact.
- This check should be modified or augmented by individual areas as necessary to mitigate their particular risks for retained objects.
- Any other check(s) which local areas feel necessary to mitigate their particular risks.
- Physical and human factor design aids to force guidewire removal exist. Organisations should consider where and when such aids may be beneficial, e.g. Wiresafe™.[95]

Equipment and instrument management

- The generic list of items to be included in the count must be agreed locally and continuously updated in line with analysis of local risks and safety incidents.
- Instrument sets and equipment should be periodically risk-assessed and rationalised to ensure that they contain minimum amounts of required equipment, and that the equipment is appropriately maintained.
- New equipment should be risk assessed and broken into component parts before use. A manual should be available, alongside training and a company representative when appropriate prior to first use.
- There must be a local traceability system of all instruments used during the procedure. These should be recorded in the patient record.
- An up-to-date list of the instruments that are present in each set/tray must be maintained. These must be included in the sterile set management by decontamination and sterilisation services so that incomplete sets and missing equipment are highlighted.
- Equipment that can be disassembled, e.g. for cleaning purposes, must be clearly described on the instrument list, including the number of parts, e.g. retractors. The integrity of all items must be visually checked before and after use, including component parts of equipment and instrumentation. The use of photographs can sometimes be helpful for complex instrumentation.

- Where possible and appropriate kit and other items should have radio-opacity.
- Organisations should consider implementation of technological solutions to tracking of swabs and instruments as they become available.

Intentionally retained foreign items

- Patients and healthcare staff must be made aware of any item intentionally or deliberately retained after a procedure and what the plan is for its removal.
- A locally agreed process should be followed whenever foreign items, such as swabs, packs, or any other objects are intentionally retained. There is currently no strong barrier, but strategies may include:
  - A coloured alert wristband indicating a retained item to clinical staff and the patient
  - A patient information leaflet with sufficient information of the site, nature, number and purpose of the retained items for the patient and any other healthcare providers
  - An alert in the notes and clear documentation on the procedural note as to the site, nature, number and purpose of retained objects
  - Confirmation of the above before Sign Out is complete
- On occasion, items which were not intended to be implanted may appropriately be intentionally left permanently in place. For example, a surgeon may on balance decide that it is safer to leave a fragment of broken screw in a bone than to risk further injury or damage in an attempt to retrieve. When this occurs, this must be clearly documented in the medical record and the patient informed.
- Absorbable packing. Some packing material is deliberately retained and is absorbed over time into the patient. It is not necessary for this to be included in the process for deliberately retained items or subsequent count.
- The receiving ward (or theatre) nurse / practitioner must confirm the presence of any intentionally retained items at the time of handover.
- The nurse / practitioner must ensure that the intentionally retained item is clearly documented and that a patient information leaflet is given.
- If the patient returns to an operating theatre / procedure room for removal of an intentionally retained foreign item the site, nature, number, and purpose of the items to be removed must be confirmed during Time Out.
- On removal of the item(s), any patient-held indicators of the item (e.g. wristbands) must be removed with clear plans to discuss the current status with the patient. Documentation of removal of items must be clear in the notes. If multiple items retained in the patient, a removed (in vs out) count check with the documentation and patient should occur.

Ward process for discharging with intentionally retained items

- The discharging nurse should ensure that the item is discussed as part of the discharge checks and the patient information leaflet is given.
- The discharging operator should ensure that the intentionally retained item is documented in the notes and the discharge summary.
- If the item is due to be removed in the outpatient department, the discharging nurse must ensure that the patient has their outpatient department appointment booked before leaving the hospital / clinic.
- The ward nurse should ensure a district nurse, general practitioner or other appropriate referral is made for items which are due to be removed in the community and the referring consultant must be informed that this has been done. A record should be kept of all patients with intentionally retained items going to the community.
- Commonly retained items include negative pressure wound dressings (e.g. VAC-dressings). An agreed system must be in place between operating theatres, wards (including on patient transfer) and the local community teams as to how dressings are accounted for. Dressing changes on the ward, in outpatients or the community must follow the same rigorous counting in and out process. Count risk and processes should be shared with tissue viability and district nursing with agreement of when a wound becomes a cavity.

Transfer of women from labour suite to maternity theatres is a particular risk.

- Maternity units should have a rigorous process for ensuring handover of any vaginal swabs between the labour suite and theatres or wards. The often-urgent nature of these transfers places the woman at higher risk of inadvertent retention and is reason to follow a robust process.

Failed reconciliation

- There should be a clear, agreed local process to follow in the event that an item is unaccounted for during or at the end of the procedure. This should balance avoiding unnecessary exposure of the patient to ionising radiation without good cause, with the risk of subjecting the patient to additional procedures.
- In the event of failed reconciliation, the operator should be informed. The operator must stop wound closure, if safe to do so, whilst the count is repeated, and the theatre and operating site searched. If unsuccessful, this process should include:
  - Immediate communication to the lead operator, and the procedure team, identifying the discrepancy
  - A full further count
  - Undertaking a thorough search for the missing item
  - Not moving the patient out of the procedure room until the missing item is accounted for
  - X-ray in the theatre should be used in accordance with local policy. A risk-benefit decision should then be made as to the need for the item's retrieval
  - If x-ray is used it should be (wherever possible) whilst the patient remains under anaesthesia and in the procedure room
  - An x-ray in the recovery room ('just in case') is not appropriate and is too late
  - Staff should never assume that missing items are not somewhere in the room
- There will be occasions on which there is a failed reconciliation but when the operator is certain that there is no foreign object remaining in the patient. Under these circumstances, the agreed processes for failed reconciliation should proceed unless and until the whole procedural team is agreed that there can be no foreign objects left in the patient.
- The operator must listen to and acknowledge the concerns of the team.
- The local process for use of x-rays must involve discussion and agreement with radiography and radiology departments to ensure the correct images are used in the correct context.
- The failed reconciliation process should specify when an image intensifier or plain x-ray is used, and when the opinion of a radiologist concerning the image should be sought. It should be noted that x-ray visible or "Raytec™" swabs cannot be reliably identified with an image intensifier, nor can needles less than 10mm. Comprehensive documentation relating to unaccounted for items should be added to the patient's record and the patient should be informed.
- Patients must be made aware of any unintentional retention of a foreign object and what impact this may have on their health. This is aside from any obligations under Duty of Candour legislation.

Maternity services

Maternity remains the highest risk area for retained foreign objects. This is in part due to a number of caregivers in the pathway, a series of handovers, the urgent nature of some interventions and the desire to avoid unnecessary medicalisation of the process.

- The count procedure in obstetric theatre or delivery room should be as in any theatre with a full count procedure and use of a count board.
- The standards of counting, equipment reconciliation, training in the count and count handover detailed above apply in full to birthing / labour suite rooms.

Emergency procedures

On occasion procedures may be of such urgency that following every standard above would pose a greater risk to the patient than providing immediate care. This is fully justifiable and supported by NatSSIPs. However, organisations should strive to have processes to reduce the risks even when certain checks cannot be performed. These include pre-prepared emergency kits, allocation of staff to specifically address equipment issues etc.

Training, competency assessment in counting and item reconciliation

- Organisations must have a robust and proportionate (risk-based) approach to training, assessment and ongoing competence for the processes described above. Details of standards expected are given in Online Sequential Step Implementation portal.
- AfPP Standards[73] expect the whole MDT to receive training and assessment in count procedure.
- AfPP Stanadards[73] do not yet include the proportionate count concept although this change in practice is intended for non-perioperative areas such as interventional radiology or minor procedures in OPD.

Caution moments during reconciliation of items in prevention of retained foreign objects

Emergency and urgent work

Multiple operative sites or cavities

Multiple trays, teams, and handovers

Maternity services

White swabs without a radio-opaque line in dressing packs

Green swabs near mouth or cavity areas

Please see the Performance Indicators 'NatSSIPs'

- **Count competencies**. Example of count competency framework.
- **Materials used for packing**. There are a number of materials which are used for packing wounds. Those which are absorable do not need to be counted.