

Introduction

This handbook has been prepared for participants on the Royal College of Obstetricians and Gynaecologists' Basic Practical Skills in Obstetrics and Gynaecology course. The course has been designed to introduce trainees to safe surgical techniques and obstetric clinical skills in a structured workshop environment.

It is a requirement that this course is completed during ST1/2 before trainees move to ST3. The course consists of three modules and covers basic surgical skills and basic skills in obstetrics. In each module, the importance of sound knowledge of anatomy, the correct development of tissue planes, the appropriate use of traction and counter-traction, the need to obtain meticulous haemostasis and the importance of gentle tissue handling will be emphasised. In addition, the trainees will be taken through basic obstetrics skills and will have the opportunity to practise these skills under direct supervision.

The course runs from a number of approved regional centres and is standardised to ensure that common objectives, content structure and assessment methods are followed. The contents of the course do not represent the only safe way to perform a procedure, but endeavour to give trainees one safe approach to common obstetric and gynaecological procedures. There is an emphasis on acquiring practical skills.

Each course will include:

- considerable hands-on practical experience
- high tutor to participant ratio
- course manual
- performance assessment with feedback to identify strengths and weaknesses.

Courses are offered under the aegis of the Royal College of Obstetricians and Gynaecologists and are held both at the College and locally to maximise convenience and reduce costs. The centres and their facilities selected for surgical and obstetric skills training have been approved by the College and are directed by RCOG-approved preceptors.

It is hoped that this course will be a valuable early step in building safe and sound surgical and obstetric skills. It should be instructive, educational and fun. We hope that you will find the course both useful and enjoyable and that it provides you with a firm foundation for your future career in obstetrics and gynaecology.

Outline of the course

Day one

- Introduction to the course
- Handling instruments, abdominal entry and suturing techniques (Practical)
- Interrupted sutures (including mattress and figure of eight), continuous sutures (including locked and subcuticular), mattress, subcuticular suturing and knot tying (Video, demonstration and practical)
- Principles of safe hysteroscopy (Lecture)
- Principles of safe laparoscopy (Lecture)
- Practical stations
 - Gynae examination/pelvic swabs/smear taking/endometrial biopsy/IUD/ring pessary
 - D&C/uterine evacuation
 - Hysteroscopy
 - Laparoscopy
 - Basic gynaecology instruments/laparotomy instrument tray

Day two

- Care of critically ill patient (Lecture)
- Anatomy of the female pelvis and vaginal birth (Lecture)
- Caesarean section and breech delivery (Presentation followed by video)
- Human factors (Recorded lecture)
- Practical stations
 - CTG interpretation and fetal blood sampling
 - Instrumental deliveries (forceps/ventouse)
 - Episiotomy and perineal repair
 - Shoulder dystocia
 - Postpartum haemorrhage and manual removal of placenta

Module 1

Basic open general surgical techniques

Learning objectives

On completion of this module you will:

- understand the principles of safe surgery and theatre etiquette
- understand the importance of gentle handling of tissues and meticulous haemostasis
- understand that careful and sound technique is more important than speed
- demonstrate appropriate instrument handling
- demonstrate appropriate suturing and knotting techniques
- understand the importance of each member of the theatre team and treating all with respect.

Introduction

This module of the course is designed to teach you basic safe methods of performing simple surgical procedures and to allow you to perform and practise them using specifically designed tissue simulators and various jigs. We aim to provide you with an enjoyable hands-on experience and the opportunity to practise vital and fundamental techniques in an atmosphere less stressed than the operating theatre.

The module aims to introduce you to some of the skills you will require in your career. Complex manoeuvres will need to be assiduously practised, preferably under critical observation, so that you do not acquire bad habits. The aim of this course is to help you acquire good habits early in your career, as it is much harder

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to unlearn bad habits later in life. The techniques chosen for this course by the RCOG are simple and safe, but we make no claim that these are the only simple techniques with proven safety. An advantage of the British system of training is that you will probably work for several surgeons in the course of your training, each of whom will show you individually preferred techniques from which you will be able to select those which suit your needs best. However, the techniques taught on this course have been standardised and are recommended for their simplicity and safety.

Preparation for the course

You should read this manual and complete the mandatory eTutorials (<https://stratog.rcog.org.uk/tutorials/technical-skills>) before attending the course. The course should be taken as early as possible in your surgical career and completed before entry into ST3.

Principles of safe surgery and good theatre etiquette

The theatre team

Teamwork is essential for effective surgery. It is essential that the surgeon acknowledges and values the contribution of each member of the team. All staff should be treated courteously. Surgeons should be particular about maintaining the highest standards and must ensure that their expectations are understood and that they are compatible with the goals of the other members of the team. The medical staff are complemented by nursing and ancillary staff who have the following roles:

- **Scrub nurse** – prepares swabs, instruments, skin preparation and drapes and hands them over to the surgeon when required. The scrub nurse assists the surgeon by counting the instruments present at the end of the operation and checking that the instrument count is correct.
- **Assistant nurse (runner)** – assists with swab count, opens packs and additional instruments and needles as required. Will often assist with positioning the patient and applying diathermy plate. May assist with adjusting the stack system during laparoscopic procedures.
- **Operating department assistant** – responsible for assisting the anaesthetist during the induction of anaesthesia and with positioning the patient and maintaining equipment during the operation.

Preparation for surgery

An optimum surgical approach allows the operation to proceed with as little stress as possible to the patient, the surgeon and assisting theatre staff.

Patient positioning

Additional information is available on the RCOG website: (<https://stratog.rcog.org.uk/tutorial/general-principles/surgical-positioning-6755>).

When transferring the patient to the operating table, care must be taken to avoid injury to both the patient and the staff. The use of a slide saves lifting. Care must be taken to ensure that, when the patient is placed on the operating table, none of the skin is in contact with the metal parts of the table. This reduces the risk of electrical leakage to earth when diathermy is activated. Operate with the table at an appropriate height and with the patient in the correct position to provide the optimum view of the operative field. This will often be in a Trendelenburg 'head-down' position so that bowel and omentum move away from the operative field of the pelvis, provided that there are few adhesions. Care should be taken that the patient is positioned so as to avoid her slipping off the operating table. The surgeon and assistants should avoid unknowingly resting on any part of the patient's body.

Ensure good views

Ensure that a clear view with good illumination is maintained throughout the operation and that there is adequate exposure. Always keep the operative field tidy with the minimum number of instruments in the wound.

Patient and staff safety

Check the integrity of instruments before use. This is especially important with electrical and endoscopic equipment. Sharp instruments should be handled in a way that reduces the risk of inadvertent injury, the blade of a knife should be guarded and the handle passed foremost, preferably via a kidney dish or suitable container. Patient safety as well as that of the theatre personnel remains the surgeon's responsibility. Always ensure that needles and blades are disposed of in a specific 'sharps' container.

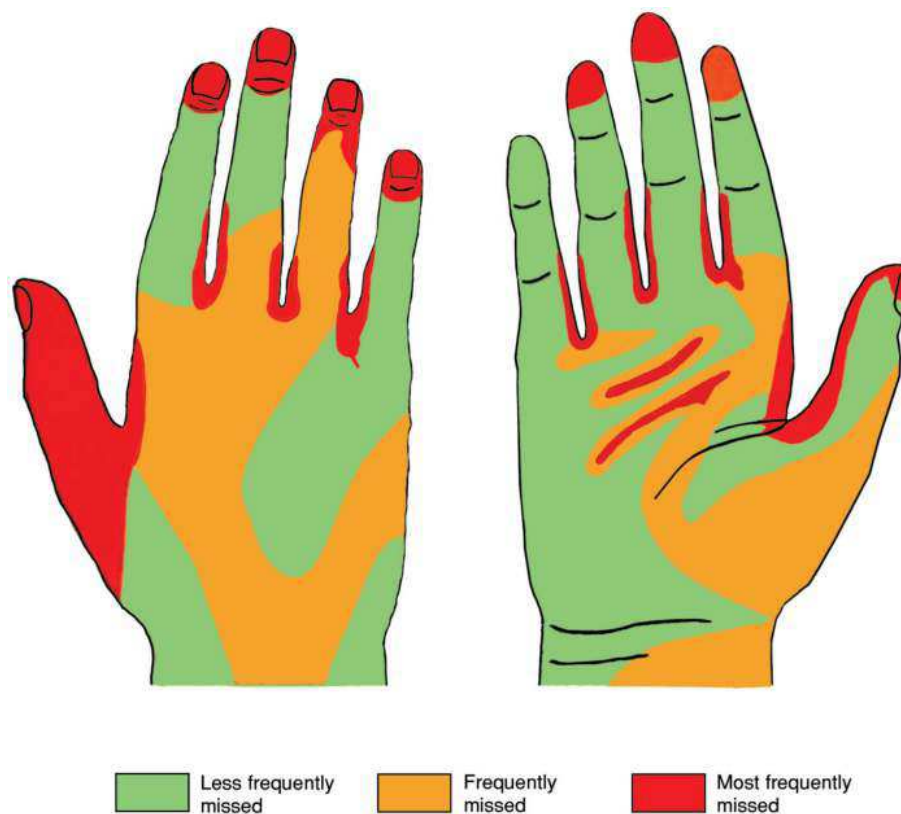
Protective clothing and hand washing

Outdoor clothes should be removed and theatre scrubs and shoes worn. It is advised that a theatre hat, a mask and visor should be worn during all procedures. Hand washing is the single most important means of preventing the spread of infection. Areas most commonly missed when hands are washed are the thumbs, the backs of the hands, between the fingers and fingertips (Figure 1.1).

Hands should be washed before all procedures: when moving from patient to patient, after visiting the toilet, before handling food and when moving from a 'dirty' to a 'clean' task on the same patient. Hands must be washed even if gloves are worn.

The level of hand hygiene will also be determined by the activity or area of practice.

Figure 1.1
 Areas commonly missed during hand washing.



Surgical hand wash

Additional information is available on the RCOG website: (<https://stratog.rcog.org.uk/tutorial/general-principles/surgical-scrubbing-6064>).

- Use an antiseptic solution such as Hibiscrub® (AstraZeneca), chlorhexidine or iodine; this is more effective than soap.
- Remove all jewellery.
- Cover cuts and abrasions with a waterproof dressing.
- Wet hands before applying soap/antiseptic.
- Lather well and rub hands together, paying particular attention to the tips of the fingers, the thumbs and the areas between the fingers.
- Extend the wash to the arms as far as the elbows and rinse well afterwards.
- Use a nail brush for 30 seconds on each hand, then rinse.
- Wash a second time for 2 minutes – both hands up to the elbows, then rinse.
- Wash a third time for 1 minute – both hands up to one-third away from elbow, then rinse with hands uppermost, allowing water to drain towards the elbows.
- Dry your hands and arms using individual towels and blotting away all moisture.

Asepsis and hygiene

An antiseptic solution, such as Hibiscrub® (AstraZeneca), should be used prior to invasive procedures, in high-dependency areas and after attending patients in isolation with known transmissible conditions. Hand rubs are used to rapidly decontaminate visibly clean hands and between patient contact if hands are not contaminated with blood or organic matter. The alcohol content of the hand gel should be greater than 60%. All areas of the hands must be covered by the gel and hands must be rubbed together until all the gel has evaporated.

Gown

Your gown should be put on by holding it in front of you and, as it unfolds, insert your arms into the sleeves. An assistant should pull the gown on from behind and tie the inside ties of the gown. A colleague who is scrubbed and gowned can assist you with the wrap-around tie.

Gloves

Gloves protect skin from contamination but only give minimal protection from sharps injuries. Gloves should be used for protection from exposure to blood/body fluids during procedures for all patients, including venepuncture, pelvic examination, wound management and surgery. Latex-free gloves should be available for those who have latex allergy.

Key features of the ideal glove

- It fits well and does not lose its shape.
- It offers optimum sensitivity and durability.
- It is powder-free, to reduce adhesions and allergy.
- It contains low levels of latex protein.

Gloves are put on without touching the external surface of the gloves (closed gloving technique). Having done this, adopt a 'scrub position' by holding your hands in front of you and being careful not to contaminate yourself before starting surgery.

Suture materials and needles

Additional information is available on the RCOG website: (<https://stratog.rcog.org.uk/tutorial/general-principles/suture-and-needles-6758>).

Suture characteristics

The ideal suture would consist of a material which permits its use in any operation; the only variable being the size, as determined by the tensile strength. It should handle

comfortably and naturally to the surgeon. The tissue reaction stimulated should be minimal and should not create an environment favourable to bacterial growth. The breaking strength should be high in a small-calibre thread. A knot should hold securely without fraying or cutting. The material must be sterile. It should not shrink in tissues. It should be non-electrolytic, non-capillary, non-allergenic and non-carcinogenic. Finally, after most operations the suture material should be absorbed with minimal tissue reaction after it has served its purpose.

No single type of suture material has all these properties and, therefore, no one suture material is suitable for all purposes. Besides, the requirement for wound support varies in different tissues for a few days for muscle, subcutaneous tissue and skin to weeks or months for fascia and tendon to long-term stability for vascular prosthesis.

Types of suture material

Suture materials are either absorbable or non-absorbable. Absorbable sutures offer temporary wound support over a period of time and thereafter are gradually absorbed either through a process of enzymatic reaction (catgut) or hydrolysis (synthetic materials). It is important to recognise that losing tensile strength and losing mass absorption are two separate events, because a suture may support the wound for only a very short time and yet be present as a foreign body for a long period afterwards. The ideal suture would be one which disappeared immediately after its work was complete, but such a suture does not yet exist.

Non-absorbable sutures are not absorbed but some, especially those of biological origin, lose strength without any change in the mass of the suture material. Others gradually fragment over time. Yet other non-absorbable sutures, especially those of synthetic origin, never lose their tensile strength or change in mass following implantation.

Sutures can be subdivided into monofilament or multifilament. A monofilament suture is made of a single strand. It resists harbouring microorganisms but has poor tying qualities. A multifilament suture consists of several filaments twisted or braided together. It is therefore easy to handle and ties secure knots.

A further classification is based on the origin of the raw material; it can either be from a biological source such as catgut or from man-made fibres. Sutures have been produced from a biological or natural source for many thousands of years. They tend to create greater tissue reaction than man-made sutures; the result can be localised irritation or even rejection. Another disadvantage is that factors present in the individual patient, such as infection and general health, can affect the rate at which enzymes attack and break down absorbable natural sutures. Man-made or synthetic sutures, on the other hand, are very predictable and elicit minimal tissue reaction. The most common man-made absorbable sutures are polymers of glycolide and lactin. Loss of tensile strength ranges from 10–14 days (rapid) to 28–30 days (medium), depending on the suture and coating used. For more prolonged tensile strength, polydioxanone monofilament may be used. The actual suture mass may take two to three times as long to be completely absorbed.

Suture selection

When repairing perineal lacerations after childbirth, prolonged tensile strength is not required, but rapid absorption of foreign body may reduce infection risk and speed the healing process. Repair of fascia, such as the rectus sheath after suprapubic transverse abdominal incision, requires retention of suture tensile strength for a longer period. Abdominal skin incisions are commonly repaired with a subcuticular monofilament suture which is cosmetic and minimises risk of infection from skin flora drawn down the suture line. Absorbable subcuticular sutures should not be dyed for risk of leaving a visible residue. If a non-absorbable suture such as polypropylene is used, it is often removed after 5–7 days.

Selection of appropriate needles

Surgical eyeless needles are manufactured in a wide range of types, shapes, lengths and thicknesses. The choice of needle to be used depends on several factors, such as:

- the requirements of the specific procedure
- the nature of the tissue being sutured
- the accessibility of the operative area
- the gauge of suture material being used
- the surgeon's preference.

Regardless of use, however, all surgical needles have three basic components: the point, the body and the swage (Figure 1.2).

The point depends on the needle type (see next section). The body of the needle usually has a flattened section where the needle can be grasped by the needle holder. In addition, some needles have longitudinal ribs on the surface which reduce rotational movement and ensure that the needle is held securely in the jaws of the needle holder. If the needle does not have a flattened section, then it should be grasped at a point approximately two-thirds of the needle length from the tip (Figure 1.3).

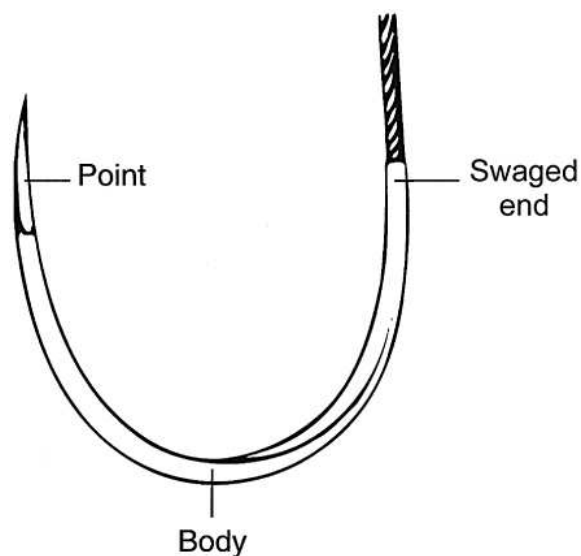


Figure 1.2
Parts of the surgical needle.

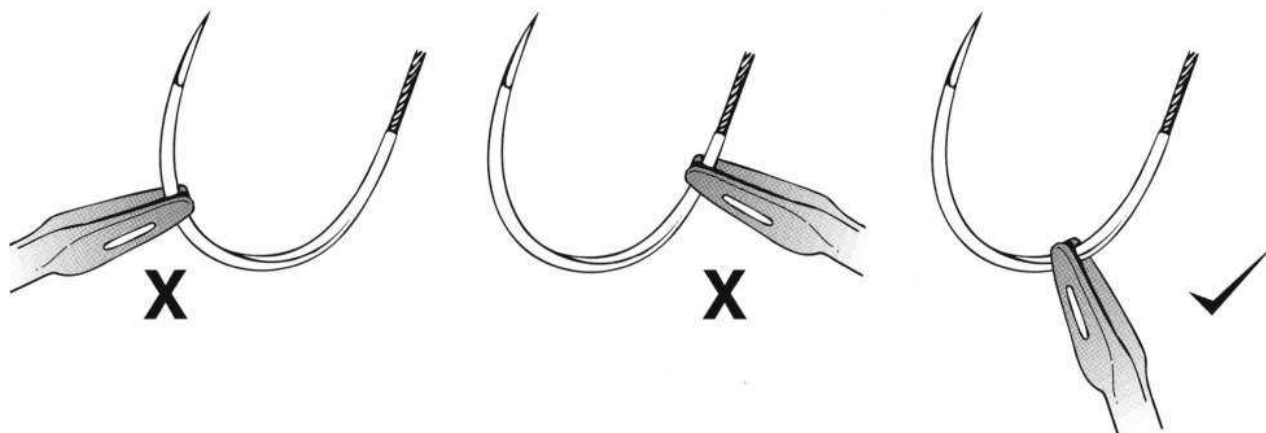


Figure 1.3
 Grasping the
 surgical needle.

The majority of surgical needles used are eyeless; that is, they are already swaged to the suture material. This has many advantages, including reduced handling and preparation and less trauma to the tissue (an eyed needle has to carry a double strand which creates a larger hole and causes greater disruption to the tissue). A swaged (eyeless) needle has either a drilled hole or a channel at the end of the needle for insertion of the suture material. The drilled hole or the channel is closed round the needle in the swaging process. Needles are normally classified according to needle type. The two main categories are round-bodied needles and cutting needles.

Round-bodied needles

Round-bodied needles are designed to separate tissue fibres rather than cut them and are used either for soft tissue or in situations where easy splitting of tissue fibres is possible. After the passage of the needle, the tissue closes tightly round the suture material, thereby forming a leak-proof suture line, which is particularly vital in intestinal and cardiovascular surgery. Round-bodied needles are often used in obstetrics and gynaecology.

Blunt or taperpoint blunt needles have been proposed as a means of reducing glove puncture, especially in patients with blood-borne viruses, and can be used in all layers of caesarean section except the skin. They are also used to suture tissues that are friable.

Cutting needles

A cutting needle is required where tough or dense tissue needs to be sutured. This needle has a triangular cross-section with the apex on the inside of the needle curvature and is useful for suturing tissues such as skin, tendon or scar tissue. Some needles combine the properties of a cutting needle and a round-bodied needle by limiting the sharp triangular cross-section to the tip, which then tapers out to merge smoothly into a round cross-section. This preserves the initial penetration of the cutting needle but also offers the minimised trauma of a round-bodied needle.