ISSUES IN PROFESSIONAL PRACTICE

THEATRE SKILLS FOR STAFF IN POORLY RESOURCED COUNTRIES

AUTHOR
Judy Mewburn, RGN, WSET Dip Hons

PUBLICATION DATE
May 2014

PUBLISHED BY
Association of Surgeons of Great Britain and Ireland
35-43 Lincoln’s Inn Fields, London, WC2A 3PE

In partnership with: Supported by:

THE SURGICAL FOUNDATION

LIMBS & THINGS

No part of this publication may be reproduced, stored or transmitted in any form or by any means, without the prior written permission of the publisher or, in the case of reprographic reproduction, in accordance with the terms of licenses issued by the Copyright Licensing Agency in the UK [www.cla.co.uk]. Enquiries concerning reproduction outside the terms stated here should be sent to the publisher at the above address. The use of registered names, trademarks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant laws and regulations and therefore for general use.
FOREWORD

*Issues in Professional Practice* (IIPP) is an occasional series of booklets published by the Association of Surgeons of Great Britain and Ireland to offer guidance on a wide range of areas which impact on the daily professional lives of surgeons. Some topics focus on clinical issues, some cover management and service delivery, whilst others feature broader aspects of surgical working life such as education, leadership and the law.

Supporting the development of surgery in poorly resourced countries has been a key objective of The Surgical Foundation, and the Association’s International Development Committee (IDC), and this title in the IIPP series - and the Theatre Skills Course which it supports - is the latest component of this strategy. Over the last twelve years, Judy Mewburn has been travelling to Sub-Saharan Africa with the ASGBI’s IDC, and has taught in over fourteen countries. Thus, Judy wrote this booklet with the aim of helping nurses in resource-poor countries to overcome the impediments to optimum practice.

This publication is based on the principles of good practice and patient care, and can be used by many disciplines, not only to improve their practical theatre skills, but also to make them aware of the many potential dangers inherent in clinical work in Africa.

The Association hopes that this publication, and others in the series (all accessible at: [www.asgbi.org.uk/publications](http://www.asgbi.org.uk/publications)), will provide concise advice and guidance on major current issues, and grow into a helpful and accessible resource to support your professional practice.

Suggestions for any potential topics for future booklets in the *Issues in Professional Practice* series would be welcome.

Professor John Primrose
President

*president@asgbi.org.uk*
CONTENTS

INTRODUCTION ......................................................... 4
UNIVERSAL PRECAUTIONS ................................. 5
SHARPS INJURIES ................................................. 7
THE OPERATING THEATRE,
ANAESTHETIC ROOM AND RECOVERY ROOM ............ 8
ORGANISATION OF AN OPERATING LIST ................. 9
CARE OF THE PATIENT IN THE ANAESTHETIC ROOM ...... 10
CARE OF THE PATIENT IN THE OPERATING THEATRE ........ 11
DIATHERMY ......................................................... 12
SCRUBBING, GOWNING AND GLOVING ................. 13
HANDLING OF SHARPS ................................... 15
HANDLING OF INSTRUMENTS DURING SURGERY ........ 16
CHEATLE FORCEPS ........................................... 17
SWAB, NEEDLE AND INSTRUMENT COUNTS ............. 18
DRESSINGS FOR WOUNDS ................................. 20
DOCUMENTATION OF PATIENT CARE .................. 21
DECONTAMINATION OF INSTRUMENTS ................. 22
AUTOCLAVING ................................................... 23
GLUTERALDEHYDE ........................................ 24
THE RECOVERY ROOM ......................................... 25
RECOVERING A BABY OR CHILD ......................... 26
PRINCIPLES OF DIATHERMY ................................. 27
INTRA-OPERATIVE PATIENT CARE PLAN ................. 28
SWAB, NEEDLE AND BLADE CHECKING SHEET ......... 29
LAPAROSCOPIC GENERAL SURGERY ..................... 30
ENT .............................................................. 32
SUTURING ......................................................... 34
WHO: SAFE SURGERY CHECKLIST ..................... 35
INTRODUCTION

Many operating theatres in Government Hospitals in poorly resourced countries have been chronically starved of equipment such that they function well below par which is very demoralising for the Theatre Staff who try to maintain an acceptable standard of practice.

This stand-alone Issues in Professional Practice booklet also acts as the Manual for a taught Theatre Skills Course, which aims to help all Theatre Staff working in the peri-operative environment to improve their practice. This course aims to enhance the standard of care that they give to their patients and also help them protect themselves against the many dangers that are part of the job. The Theatre Skills Course, and thus this booklet, is divided into Pre, Peri and Post-Operative phases, with general topics covered as necessary.

The Theatre Skills Course, and this accompanying Manual, has been designed by Judy Mewburn, a highly skilled Theatre Sister who has had extensive experience of working and training theatre staff in the poorly resourced world since 1998. For the last twelve years she has travelled to Africa, Sri Lanka and Bangladesh with the Tropical Health and Education Trust (THET), the Association of Surgeons of Great Britain and Ireland (ASGBI) and Impact, a charity that strives to prevent disability by early surgical intervention. Thus, Judy has been able to observe practice in operating theatres in Ghana, Kenya, Zambia, Uganda, Tanzania, the Gambia, Sierra Leone, Rwanda, Botswana, Bangladesh and Sri Lanka, and, in all of these countries, she has been impressed with the determination of the staff to do their best with very little in the way of equipment and resources.

This Course Manual ensures that the Theatre Skills Course is sustainable, and is a legacy to Judy’s many years of hard work, good humour and optimism.

Robert H S Lane
MS, FRCS Eng, FRCS Ed (ad.hom), FACS, FWACS (Hon), FCS (ECSA)
President, International Federation of Surgical Colleges.
Honorary Surgical Advisor, Tropical Health & Education Trust.
Past President, Association of Surgeons of Great Britain and Ireland, and Programme Director for International Development.
UNIVERSAL PRECAUTIONS

It is often impossible to know if our patients are Hepatitis or HIV carriers and so pose a risk to staff. It is, therefore, sensible to treat all patients as a potential risk. By so doing, we take away the discrimination felt by patients who are treated in a different manner to others and help to safeguard the health and personal safety of all of the staff working in the peri-operative environment.

- Staff should, therefore, always wear protective clothing, aprons, masks, glasses or special eye wear and gloves when attending to patients.

- It is important to remember that the HIV and Hepatitis virus are carried in all body fluids not just blood. Urine, faeces, vomit and saliva will all contain the virus, and care must be taken when handling all of these.

- All cloths and wipes that are used to clean a patient must either be disposed of in a plastic bag and then incinerated, or boiled for at least 20 minutes.

- Cloth aprons must also be boiled, and plastic aprons disposed of in a black plastic bag and incinerated.

- Masks must be removed by untying the strings and put in a plastic bag, or boiled if cloth.

- Gloves should always be taken off by peeling the cuff over the hand and dropping the glove into a plastic bag.

- Masks are worn to protect your nose and mouth from accidental contact with the patient’s bodily secretions. They are not worn to protect the patient from your cold or cough. Therefore, masks must be worn when scrubbed, when anaesthetising a patient or when recovering a patient, especially after a procedure where the airway has been compromised such as an ENT procedure.

- It is essential to protect your face and eyes when cleaning instruments, so wear a mask when performing this task.

- There is absolutely no sense wearing a mask just because you have walked through the theatre entrance door or are going to dust the shelves. Use masks only when needed, and you will cut down on your costs.

- It is very bad practice to wear a mask hanging round your neck. The mask will be contaminated by your respirations, will be damp and, should you use it again, it will provide a very flimsy barrier for your face.
• Discard your paper mask after each case and put on a fresh one. If using cloth masks, make sure you change them during the day. Do not put a used mask in your pocket so that you can wear it on another day.

• Footwear in theatres: Clogs are the preferred form of footwear, because they protect your feet from injury from dropped instruments and also because they are comfortable and can be easily cleaned.

• Surgeons used to be given white wellington boots, as many procedures, such as a prostatectomy, which involve large amounts of fluid can be very messy. These are still used in many countries and do protect the wearer. Again, they are easy to clean.

• Flip-flops are very often worn in theatres in hot countries and, whilst being comfortable, afford no protection for the wearer from injury and certainly not from contaminated fluids on the theatre floor. They are, therefore, unsuitable for wearing in theatres.

• If you cannot get clogs, it is better to buy a pair of trainers and keep them exclusively for theatre wear. All footwear must be cleaned regularly and only worn in the theatres.

• It is of great importance that all clinical waste is disposed of in an appropriate manner. Waste must be put into a plastic bag, the bag sealed and then taken to be incinerated.

• All Sharps, scalpel blades, suture needles and syringe needles must be put into an appropriate container. These containers must be of tough cardboard which cannot be pierced, or preferably a ‘sharps bin’ manufactured for the purpose. The correct method of disposal of these boxes is by incineration.
SHARPS INJURIES

• If a used needle, scalpel blade or other contaminated sharp injures you, act straight away. Make the injured sight bleed as much as you can. Rinse the site with lots of water. Report to your senior nurse. All hospitals should have a policy on how to deal with sharps injuries, and you must read it before starting work. There are anti retroviral drugs available in some hospitals, and the regime for taking these must be followed.

• Splashes in the eye are also a potential source of major contamination for the health care worker. A pair of glasses with plain glass will protect you. If you do get a splash of body fluid in your eye, rinse it out with lots of cool water and report the incident to your superior nurse.

• By using these simple precautions for every patient, you will be doing your best to protect yourself from potential contamination.
THE OPERATING THEATRE, ANAESTHETIC ROOM AND RECOVERY ROOM

• These rooms must be fit for purpose. Walls must be washable, floors must be smooth and curved at the edges to meet the wall, so that there is no sharp angle in which dirt can be trapped.

• Good lighting is essential in all areas.

• In the operating theatre, a system of air conditioning is essential to maintain the sterile field. Temperature and humidity should not be allowed to go too high, as this will result in infection and poor wound healing.

• All flat surfaces should be wiped over on a daily basis with a cloth and antibacterial solution. This will depend on what your hospital has available.

• Keep flat surfaces clear and store all syringes, needles, endotracheal tubes, etc, in a cupboard in the anaesthetic room, bringing out only what is needed for the day.

• The same principle applies in the operating theatre. Try to use only one trolley for sutures, dressings and other intra-operative needs, and make sure it is covered at the end of the day.

• There should be an area, near to the scrub sink, where gowns and gloves can be stored and laid out when needed.

• Instrument Trolleys should be laid up in a designated area, which is clean and free of traffic of personnel.

• At the end of the case, the trolley should be wheeled into the sluice for decontamination and sterilisation of instruments and disposal of waste.

• The recovery room should have good lighting and be next to the theatres. Suction, oxygen and monitoring equipment are all essential.

• Trolleys on which the patients are recovered should be able to tilt head down in case of patient collapse.
ORGANISATION OF AN OPERATING LIST

There are several factors to take into consideration when planning an operating list:

- Age.
- Existing disease.
- Existing infection.
- Viral status.
- Dirty case, i.e. anorectal abscess.

- So a baby would be put first on a list, so as to minimise the time that fluids have to be withheld.
- A child would go next for the same reason.
- A diabetic would need to be carefully monitored and also placed early on the list.
- Very ill patients, patients with existing heart disease, etc should be put at the start of a list.
- Orthopaedic patients must be put before known infected cases.
- Despite using universal precautions, it is often expedient to put a patient with a known viral or bacterial illness at the end of the list.
- A known infected case, an abscess or dirty wound, would also be put at the end of a list.
- This gives the air conditioning a chance to fully change the air before the next patient. If you do not have air conditioning, try not to use the theatre for at least two hours after a dirty case.
- Planning an operating list should be done with the nurse and surgeon working together. Consultation the day before the list will result in proper planning and better patient care.
CARE OF THE PATIENT IN THE ANAESTHETIC ROOM

• The nurse always acts as an advocate for the patient. We are there to support and comfort, and to make sure that the procedure and its outcome are always explained.

• A patient should be welcomed into the anaesthetic room, made comfortable, and a full explanation of what is going to happen to them should be given.

• It is also important to ensure that the dignity of the patient is respected and proper covers provided.

• A parent should accompany a baby or child to the anaesthetic room and stay with them until they are asleep.
CARE OF THE PATIENT IN THE OPERATING THEATRE

The care of the unconscious patient is one of the nurse’s most important jobs. You are there to ensure their safety at all times.

- This includes making sure that the patient is transferred from trolley to table with care, making sure that the head is held by the anaesthetist at all times during the transfer.

- Make sure that arms and legs do not get dropped. Position the patient in the required position making sure that all pressure points are padded, i.e. the ulna nerve and heels especially, and that the patient stays covered.

- Research has shown that the patient recovers faster, and wounds heal better, if the body temperature is kept at a normal level during surgery. Cover all parts that do not need to be available to the surgeon.

- The air conditioning or open window maybe very refreshing, but remember that the patient will be getting chilled and will take longer to recover.

- At the end of the case, again take care to transfer the patient in a safe manner. Four people are the minimum it takes for a transfer; the anaesthetist at the head, one person on each side and one holding the feet. It is not appropriate to lift the patient using the sheet held up by one person in the manner of a sack of rice.

- You must safeguard your own health when working, and proper lifting techniques will go a long way to keeping your back in good condition.
DIATHERMY

Diathermy is the use of an electrical current to cauterise blood vessels. The principle is that the current is passed from the diathermy machine, down the lead to the diathermy forceps, to the bleeding vessel. The current then passes through the patient’s body until it is grounded by the diathermy plate and sent back to the machine.

• It is, therefore, very important that the diathermy grounding plate be placed with great care. It should be put over a large muscle or set of muscles, ideally the upper leg. If the patient has had any joint replacement surgery, do not put the plate near the replacement.

• The diathermy grounding plate should be placed on the top of the leg, to avoid any danger of fluids pooling under it, and should be secured in place with straps or crepe bandage.

• Care must be taken when cleaning the skin prior to surgery, so that no fluid is allowed to flow under the plate.

• At the end of the case, the sight of the plate must be examined for any burns, and this must be noted down.

• When positioning the patient, check that the hands or arms are not hanging down and touching the metal table. If there is any contact between the patient and the table, the electrical current from the diathermy will cause a burn.

• Always check that the insulation on the diathermy forceps is in good condition, as a fault, crack or absence of insulation will result in a burn to the tissue of the patient or surgeon or nurse.

• Never use alcohol based cleaning solutions without thoroughly drying the skin before placing the towels. If there are any pools of alcohol, and diathermy is used, there may well be an explosion or fire.
SCRUBBING, GOWNING AND GLOVING

We all know the ideal of a disposable gown, with long sleeves and an expensive pair of perfectly fitting gloves, but this does not always happen! However, the principles are the same, whatever the state of the gowns.

**Scrubbing**

- Ideally a chlorhexidine or iodine based scrub solution should be used. This should be in a dispenser, so that the elbow can be used to depress the lever and the solution dispensed.
- Soap is acceptable for scrubbing, but only if you keep the soap in a dish that drains, so that the soap remains dry when not in use.
- Brushing: Use a soft brush, not a hard floor scrubbing brush. The brush must be used for your nails only. Your skin has a certain normal flora and the more you brush, the more you disturb this flora which leads to soreness and sensitisation.
- Wash the hands for one minute, lathering up to the elbow. Rinse, making sure that the hand is held uppermost and the water flows off the elbows.
- Wash again for two minutes, paying attention to the area under the nails and again up to your elbow. Rinse.
- Now wash for two minutes, making sure that all surfaces of the hand and in between the fingers are cleaned. Rinse.
- Dry using a sterile towel and drying each hand, and then gently oscillating down the arm ending at the elbow. At no time should the towel be rubbed up and down the arm.
- Do not keep your brushes in an antiseptic wash, but rather rinse after use and put in a clean dry dish.
- Subsequent scrubs should be limited to three minutes, particularly if you are doing many short cases.
- An alcohol hand rub can be used, and allowed to dry for a minute.
Gowning and Gloving

• Pick up the gown with the inside facing you, and put your arms in the sleeves, shaking the gown on. Keep your hands inside the sleeves.

• Put on your gloves by sliding them on to the sleeves of your gown and pushing the hands into the gloves. This is very tricky if the sleeves are too short, but can be managed if your circulating nurse waits until you have your hands in your gloves before doing up the back of the gown.

• Always keep your gloved hands above your waistline when scrubbed.

• Powder is still used on some gloves, and this can be very irritating to tissue, so rinse your hands in sterile water before commencing surgery.

• Remember to wash your hands after you have taken your gloves off, you only have to scratch your eye once and experience the pain caused by the powder to know this is a good idea!

• Double gloving is universally accepted as the best method to protect yourself against sharp injuries. It is better to put on a glove one half-size bigger than your normal size UNDER your normal size glove.
HANDLING OF SHARPS

Needle stick and sharps injuries are the most frequent accident that happens in the operating theatre. Therefore, the greatest care must be taken when handling sharps, scalpel blades, syringes and needles and suture needles.

• Always hand sharps to the surgeon in a kidney dish, and hold the dish so that the surgeon can replace the instrument and you can place it on your trolley.

• Do not allow the surgeon to hand you the scalpel blade first and expect you to take it. Insist on this piece of good practice, and you will soon be setting an example to all.

• Sharps must be disposed of in an appropriate container. Either a specially made sharps bin, or a custom made cardboard sharps box. These should be filled no more than two thirds full, sealed and incinerated. Never try and force that extra sharp into the box, it is too easy to slip and injure yourself.
HANDLING OF INSTRUMENTS DURING SURGERY

The surgeon will expect the scrub nurse to hand him the instruments that he needs at the appropriate time. To do this well, you must both be comfortable.

- The table should be at waist height for the surgeon, so that they neither have to stretch nor bend.
- The scrub nurse should position her/him self so that instruments can be passed with ease, and without having to turn round.
- The surgeon will be concentrating on the operative field and will not want to look up, so always place the instrument firmly in the surgeon’s hand.
- You may also be required to assist with retractors, cut sutures, etc, so make sure you can reach without any stress.
- In head and neck cases, and in ENT surgery, make sure that instruments are never passed over the patient’s face. Always stand on the same side as the surgeon’s dominant hand, so that you can pass the instrument directly.
- Keep your instruments tidy; a messy trolley is unprofessional, and it is hard to find the instrument you need in a hurry.
- Keep your used swabs in a kidney dish until you want to count out a certain amount.
- Put all used blades and needles in a small bowl. This will safeguard you, and enable you to count them at the end of the case.
CHEATLE FORCEPS

These forceps are usually kept in a metal container, and used by the circulating nurse to hand swabs, towels, etc, to the scrub nurse. It MUST be remembered that these forceps are not sterile, and that you are, therefore, contaminating anything which you pick up.

- The only way to ensure sterility is to have Cheatle forceps individually wrapped and sterilised and used only for one operation.
- Laying up a trolley using two Cheatle forceps from the Cheatle jar results in a totally unsterile trolley.
- It is better for the nurse, once gowned and gloved, to pick out the swabs and towels from the drum. This can only be done at the start of a case when the gloves are clean.
SWAB, NEEDLE AND INSTRUMENT COUNTS

In most countries, it is the legal responsibility of the scrub nurse to keep an accurate count of all swabs, needles and instruments on the trolley. A count is a method of insurance for the patient. A swab left in the body will become a source of infection and the patient will suffer as a consequence. Leaving an instrument or sharp object in the body will cause immediate and life threatening harm.

• Therefore, all swabs, instruments and sharp objects must be counted as the nurse is laying up the trolley, and as the operation is drawing to a close and again before the abdomen and skin have been sutured.

• This count must be documented, preferably on a count sheet which can then be put into the patient notes. A swab board can be used, but this is not documented evidence. Once the board is cleaned, it is difficult to remember what was written on it. [NOTE: An example of a count sheet will be included in the course].

• During the operation you will want to count down the used swabs you have in your kidney dish. Count with your circulating nurse who will then document this on the count sheet.

• Every time a needle is given to the scrub nurse, it must be put on the count sheet. Only by being consistent and accurate can you be exact.

• If the circulating nurse should change during a case, a full handover must be carried out.

• If there is a discrepancy in the swab count, do not tip all used swabs on to the floor and wave them about with the Cheatles. Put a cover on the floor and handle swabs carefully with minimum disturbance. Aerosol contamination of your face and eyes with blood is a very real possibility if you wave swabs about.

• Instruments should be kept either on the tray, and used as needed, or tidily on the trolley. This will facilitate the count.

• If you place a haemostat on a swab, ask the circulating nurse to document it.
• Retractors have been left in patients, so do not think that haemostats are the only instrument you have to count. You must check all instruments.

• Sharps should be placed in a bowl and will, therefore, be easy to count at the end of the case. They can then be put in the sharps box without having to be touched again by the scrub nurse.

• Missing swabs, instruments and sharps must be reported to the surgeon, so that a search can be instigated before the abdomen is closed.
DRESSINGS FOR WOUNDS

Some nurses will be able to obtain specific dressings with pads to cover the wound with a surrounding adhesive area. However, many will be making their own dressings using swabs from the trolley and zinc oxide plaster. If dry gauze is being used as a dressing, the following is recommended.

• Wounds have been shown to heal much faster in a moist environment, so if it is possible to obtain some antibiotic ointment, or even a proprietary brand of petroleum jelly based product, put a line of this on the dressing to cover the wound.

• Removal of the dressing will then be much easier and less painful for the patient.

• If a dressing has adhered to the skin, soak it in saline before attempting to remove it. This will result in less damage to the tissue, and less pain for the patient.

• This is especially important in the case of burns, or wounds that have been caused by abrasion such as seen in road traffic accidents, when skin is abraded by contact with the road surface. Soak the dressings well with saline before trying to remove them.

• The use of ointment on the dressing has been used in the Lacor hospital in Uganda for the last two years. The nurses on the wards report that the patients find it much more comfortable when the dressings are removed, and that healing has been much better.
DOCUMENTATION OF PATIENT CARE

The care of the patient may be first class, but unless the nurse has documented this care who is to know? Where will the defence be when questions are asked? As will be seen from the patient care document, all aspects of the care which the team gives to the patient are able to be recorded.

This document covers care in the operating theatre and the recovery area. It should be used for every patient, and it should be put into the notes when they are returned to the ward.

Ward nurses can then refer to it for information on sutures, drains, catheters and dressings.

As all vital signs have been monitored and documented, any change will be easily seen.
DECONTAMINATION OF INSTRUMENTS

At the end of every case, the trolley containing the dirty instruments and bowls should be wheeled into the sluice.

- Here, all contaminated disposable waste must be put in a black plastic bag.
- The instruments should be transferred to a basin for basic washing.
- Many soak their instruments in sodium hypochlorite, and this might destroy the HIV virus. However, it does not destroy the Hepatitis virus and wreaks havoc on instruments, pitting the surface and encouraging rust.
- Why not just wash in very hot water, which also destroys the HIV virus, with some disinfectant such as chlorhexidine, which does not harm the instruments?
- Whatever method is adopted, glasses or goggles must be worn, as well as a face mask and plastic apron.
- Never scrub the instruments in a see-saw fashion, as the aerosol contamination will fly straight into your face, always scrub away from yourself.
- Repack the instruments into a clean tray, and wrap and autoclave them before storage.
- NEVER store just-washed instruments in drawers without autoclaving. The hepatitis and tubercular organism can live for a long time outside the body, and is only destroyed by autoclaving.
AUTOCLAVING

The Quality of the autoclaving process relies entirely on the upkeep and testing of the autoclave.

• Instruments may be put through a cycle, but unless the autoclave is coming up to heat and holding that temperature for the required amount of time, the instruments will remain unsterile.

• Therefore, the autoclave must be tested every day to ensure that parameters of heat and time are correct, and this fact must be documented in a book, a test register.

• Get the autoclave serviced by the manufacturer on a regular basis, again, document this.

• If the autoclaves have been donated, try and get the maintenance manual from the manufacturer. The maintenance of equipment which has been donated is one of the huge problems in developing countries, but all equipment comes with the proper documentation and it may require a certain amount of chasing to obtain it.

• Provided the sets have been double-wrapped and labelled when they are cold and dry, and stored in a plastic bag, the set should stay sterile for one year.

• This will vary with the storage conditions. Hot and damp rooms will cause rapid deterioration, so try and find the driest and coolest place possible.

• The label should state the type of set, and the date of expiry of sterility.

• Store heavy sets at waist height, so that they can be lifted without injury.

• Store similar sets together.

• A register of the amount and types of sets available is a useful reference. A weekly check can then be undertaken, to ensure that nothing is missing.
GLUTERALDEHYDE

This product is very widely used in the developing world to sterilise instruments. However, it has been found to cause allergic reactions to the skin and to damage the respiratory system. Therefore, it must always be used with the greatest care.

- Wear gloves, a mask and eye protection whenever handling instruments which have been soaked in gluteraldehyde.
- Ideally there should be an extractor hood over the gluteraldehyde tank. If you do not have one, make sure that the tank is placed in a large space with plenty of good ventilation.
- On no account should the tank be placed in a small unventilated room.
- Always study the instructions to see how long instruments should be submerged in order to kill bacteria and viruses.
- The instruments must be rinsed in sterile water before use on a patient.
- Cases of sensitisation should not work near gluteraldehyde again.
- There is an alternative product, peracetic acid, which is non-toxic but more expensive. If any of your staff do have problems with gluteraldehyde it would be sensible to change to peracetic acid.
THE RECOVERY ROOM

Recovering a patient is a skilled task which involves the nurse observing the patient, recording their vital signs, making sure the airway is clear, administering oxygen if needed and monitoring the wound for bleeding, and the drain for unexpected bleeds.

- The position in which the patient is recovered depends on the nature of the surgery performed.
- The usual position is the left lateral, with the knees slightly bent to support the body and the hands placed comfortably beside the face.
- This position is used for all patients who have undergone surgery which may compromise the airway, i.e. ENT, Dental and head and neck. It is much easier to maintain the airway and to observe the patient for bleeding, changes in skin colour - which may indicate lack of oxygen - and to allow any mucus or blood to drain from the mouth.
- Patients who have undergone abdominal, breast or orthopaedic surgery may be recovered in the supine position.
- Great care must be taken to ensure that the airway does not obstruct, and very often the jaw must be held gently forwards until the patient can maintain their own airway.
- The pulse, blood pressure and respirations should be recorded every five minutes for the first 20 minutes in recovery. These observations must be recorded on the patients chart.
- A pulse oximeter will provide a reading of the oxygen saturation, so should be used if available.
- Never pinch, or otherwise inflict pain on, a patient in order to wake them.
- Remember that the first sense to return is hearing. Call the patient’s name softly, and they will often open their eyes. Also remember that the patient can hear what you are saying long before they open their eyes!
- Sit at the patients head if you are recovering them in the left lateral position. In this way you can monitor their airway and use suction if necessary.
- In the supine position, sit at their side so you can observe them.
- Make sure the patient is well covered. A warm patient will recover faster and be better oxygenated.
RECOVERING A BABY OR CHILD

Recovering a baby or child is a very intensive task. The child must never be left alone, as they make wake suddenly and jerk or roll off the bed. Always sit at the head, so that you have complete control of the airway, and can restrain the child when they wake. Be prepared for crying and uninhibited movement when they regain consciousness. The child will be confused, unhappy and usually the only person who will console them will be their mother.

- Always remember that, as a professional, the nurse is the patient’s advocate throughout the peri-operative episode.
- Treat the patient as you would like to be treated, with respect and consideration.
- They have trusted you to care for them whilst they are unconscious and unable to care for themselves.
- This is a huge responsibility and privilege, and your knowledge and delivery of care will enable the patient to have a safe journey through the operating theatre and a speedy recovery.
- Always take pride in doing the job to the best of your ability, and you will have a satisfying and rewarding working life.
THE PRINCIPLES OF DIATHERMY

• Diathermy is the use of electrical current to achieve haemostasis during surgery. The current passes from the diathermy machine to the patient via the diathermy lead. After coagulating a vessel, the current passes through the patient and is grounded onto the diathermy plate and, thence, back to the machine via the lead.

• There are two types of diathermy, mono-polar and bi-polar. In mono-polar, the current is as described above. In bi-polar the current passes to the patient along one side of the double lead, through the tips of the forceps and then back to the machine via the second side of the lead. Bi-polar is used for children and operations on the face and neck, as it is less aggressive.

• The diathermy plate should be placed either under, or bandaged on to, a major group of muscles. The best site for the plate is bandaged on to the upper thigh. Never place the plate under the shoulder or on the lower leg.

• Care must be taken to ensure that no cleaning fluid is allowed to pool on the grounding plate, as a diathermy burn will ensue. Never prepare the skin with spirit or use spirit to clean the plate. This is because the spark from the diathermy could ignite the spirit and cause an explosion or fire.

• Always check that none of the patients limbs are resting on the metal parts of the operating table, as the current will pass to the metal causing burns to the patient. Diathermy must always be used with the utmost care and caution.
# INTRA-OPERATIVE PATIENT CARE PLAN

<table>
<thead>
<tr>
<th>Date:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Time into Theatre:</td>
<td></td>
</tr>
<tr>
<td>Patient Number:</td>
<td></td>
</tr>
<tr>
<td>Name:</td>
<td></td>
</tr>
<tr>
<td>Date of Birth, or Age:</td>
<td></td>
</tr>
<tr>
<td>Proposed Operation:</td>
<td></td>
</tr>
<tr>
<td>Ward:</td>
<td></td>
</tr>
<tr>
<td>Surgeon:</td>
<td></td>
</tr>
<tr>
<td>Anaesthetist:</td>
<td></td>
</tr>
<tr>
<td>Patient Position:</td>
<td>Limbs Padded:</td>
</tr>
<tr>
<td>Site of diathermy plate:</td>
<td></td>
</tr>
<tr>
<td>Site checked at the end of operation:</td>
<td></td>
</tr>
<tr>
<td>Skin cleansing agent:</td>
<td></td>
</tr>
<tr>
<td>Tourniquet:</td>
<td>Site:</td>
</tr>
<tr>
<td>Specimen for Histology:</td>
<td></td>
</tr>
<tr>
<td>Type of drain to wound:</td>
<td></td>
</tr>
<tr>
<td>Type of suture used to close the wound:</td>
<td></td>
</tr>
<tr>
<td>Catheter:</td>
<td>Yes:</td>
</tr>
<tr>
<td>Nasogastic Tube:</td>
<td>Yes</td>
</tr>
<tr>
<td>Swab, needle and instrument count correct?</td>
<td></td>
</tr>
<tr>
<td>Scrub Nurse:</td>
<td></td>
</tr>
<tr>
<td>Circulating Nurse:</td>
<td></td>
</tr>
<tr>
<td>Time into Recovery:</td>
<td></td>
</tr>
<tr>
<td>Blood Pressure:</td>
<td></td>
</tr>
<tr>
<td>Pulse:</td>
<td></td>
</tr>
<tr>
<td>Respiration:</td>
<td></td>
</tr>
<tr>
<td>Wound checked:</td>
<td></td>
</tr>
<tr>
<td>Drain checked:</td>
<td></td>
</tr>
<tr>
<td>Time patient sent to the ward:</td>
<td></td>
</tr>
</tbody>
</table>
# INTRA-OPERATIVE SWAB, NEEDLE AND BLADE COUNT

|                | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
|----------------|---|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| **Small Swabs** |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| **Abdominal Swabs** |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| **Tonsil Swabs** |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| **Other Swabs**  |   |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| **Needles (please circle):** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| **Blades (please circle):** | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

**Scrub Nurse:**

**Circulating Nurse:**

<table>
<thead>
<tr>
<th>Pre-operative count: Correct</th>
<th>YES</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closing count: Correct</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>Final count: Correct</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Patient Name</th>
<th>Hospital number</th>
</tr>
</thead>
</table>
LAPAROSCOPIC GENERAL SURGERY

Laparoscopic surgery is becoming the preferred method of undertaking many operations.

Choleycystectomy, hernia repair, bowel resections, splenectomy, appendicectomy, hiatus hernia repair and many more complex procedures, are all performed laparoscopically.

There are many advantages to this form of surgery.

- Smaller scars.
- Less pain for the patient post-operatively.
- Minimal muscle damage, because the fibres are split rather than cut.
- Less Intra-abdominal trauma, so fewer adhesions.
- Shorter hospital stay.
- Speedy return to normal activities.
- Less risk of sharps injury.
- Many operations are now done as Day Case Surgery.

LAPAROSCOPIC CHOLEYCYSTECTOMY

Theatre Layout

The patient lies in the supine position on an operating table, which must be able to be tilted lengthwise and laterally, with the anaesthetist at the head of the table. The surgeon stands by the patient's left arm. The camera person by the patient's left thigh. The scrub nurse by the patient's right thigh, with the instrument trolley towards the patient's feet. The television and insufflator by the right shoulder, and the television stack and insufflator by the left shoulder. The diathermy should be at the foot of the table.

Procedure

- The anaesthetist gives a general anaesthetic, and the patient remains ventilated throughout the procedure. An oro-gastric tube is sometimes passed, in order to deflate the stomach.

- The patient is placed in the supine position with arms well padded.

- The diathermy plate is placed appropriately.

- As long as the patient has passed urine pre-operatively, there is no need for a catheter.
• The abdomen is cleaned in the standard fashion, using an aqueous solution.
• The patient is draped, leaving an area exposed from just below the nipples to just above the pubic hairline.
• All leads and tubing are then connected and tested: Diathermy, insufflator, camera and light leads, suction and irrigation.
• At the end of the case, all leads are disconnected and the diathermy plate sight is checked.

Instrumentation

• Verres needle No 1, if the surgeon uses a closed primary port technique.
  • 10 or 11 mm trocars x 2.
  • 5mm trocars x 2.
  • 5mm reducing sleeve x 1.
  • 0% telescope 10mm x 1.
  • 0% telescope 5mm x 1.
  • Some surgeons also use a 10mm 30% telescope, or a 5mm 0%.
  • Light cable.
  • Camera.
  • 5mm diameter grasping forceps x 2.
  • 5mm diameter dissecting forceps x 1.
  • 10mm clip applicator x 1.
  • 5mm diameter micro scissors x 1.
  • 10mm diameter retrieval forceps x 1.
  • 5mm diameter diathermy hook electrode and lead x 1.
  • 5mm diameter suction and irrigation cannula x 1.
  • Long 14 french gauge abbocath.
  • Stoke on Trent cannula or equivalent x 1.
  • 20ml syringes x 2.
  • Mayo scissors x 1.
  • Dunhill artery forceps x 5.
  • Needle holder x 1.
  • Toothed dissecting forceps x 1.
  • Small Langenbeck retractors x 2.
ENT

ENT is the abbreviation for Ear, Nose and Throat, and refers to surgery carried out on these organs. Doctors in this branch of medicine are called Otorhinolaryngologists or Ear, Nose and Throat surgeons.

The most common throat operation is the removal of adenoids and tonsils (adenotonsillectomy). Tonsils are ovoid pieces of lymphoid tissue situated on either side at the back of the throat, and adenoids are at the back of the nose or nasopharynx. They provide a barrier to infection, however, these organs can themselves become infected and swell, thus blocking the nose or result in a severe sore throat known as tonsillitis. This operation is usually performed in childhood, and is called adenotonsillectomy. There is a risk of post-operative hemorrhage after this type of surgery.

The nose can become blocked for various reasons, which results in an inability to breathe properly and causes discomfort. The mucous membrane, which lines the nose and covers the turbinate bones, warms air as it enters the nasopharynx. Small hairs in the nose filter out inhaled dirt particles. Sometimes the mucous membrane swells and this causes difficulty with breathing. Antihistamine tablets or steroid nasal sprays may help. If not, consider diathermy to the nasal mucous membrane over the inferior turbinate bone. Such treatment causes the nasal lining to shrink and, thus, reduces the blockage.

A bent (deviated) nasal septum can also obstruct the passage of air through one nostril. The septum is the cartilaginous part of the nose, and is easily traumatised. Resection of the deviated septum allows the air to pass freely and relieves the blockage symptoms.

The external, bony part of the nose can be broken in a variety of ways, and this also results in difficulty breathing. The bony break can be surgically repaired, allowing the nose to again breathe properly.

A common cause of facial pain is infection in the maxillary sinus. The infected matter can be aspirated with a trocar and syringe, and then the sinus washed out. Care must be taken not to put the trocar into the orbit, and the eye is always watched during this procedure.
For all of these procedures, the patient is in the supine position, the head wrapped in a double towel and there is also a towel over the body. The eyes must be protected with a damp swab taped to the skin. The only exception is for an antral washout, where the eyes must be left open to check for damage during the operation.

Most patients will have a throat pack during nasal surgery. These packs obviously block the airway and must be removed at the same time as the endotracheal tube. A small nasal pack may be put into the nose, and care must be taken at the end of the anaesthetic that the patient does not clamp his jaw shut as this would completely obstruct the airway.

Patients must be recovered in the left lateral position lying flat, so that any blood can come out of the mouth and is not inhaled into the lungs.

**Ear Surgery**

Most ear surgery is performed to relieve deafness. This can be caused by nerve conduction failure or damage to the bony ossicles in the middle ear. Another common condition is perforation of the eardrum. This is caused by infection or from a blow to the ear. Bathing in dirty water or rivers is also a major cause of ear infection. Repair of the eardrum with temporalis fascia taken from behind the ear is an effective way of restoring hearing and repairing the eardrum. Occasionally, cholesteatoma can cause deafness and erode bone in the middle ear. This problem needs urgent surgery.

All patients having ear surgery will have a dressing to keep the wound clean. This stays on for three days.

Some children develop deafness from a buildup of mucous in the eustachian tube. Myringotomy can be performed to relieve this deafness. This involves a small incision made in the eardrum by a myringotome, and then insertion of a small plastic tube called a grommet. This allows the mucous to drain so the hearing is restored.
SUTURING

Table 1. Characteristics of the Most Commonly Used Suture Materials

<table>
<thead>
<tr>
<th>Suture Material</th>
<th>Tissue Reaction</th>
<th>A or N</th>
<th>Braided</th>
<th>Non-Braided</th>
<th>Suture Strength</th>
<th>Primary Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chromic catgut</td>
<td>+++</td>
<td>A</td>
<td>X</td>
<td></td>
<td>Lasts 3–4 wks at most</td>
<td>Facial wounds, lip/intracranial mucosa, children’s wounds</td>
</tr>
<tr>
<td>Nylon</td>
<td>+</td>
<td>N</td>
<td></td>
<td>X</td>
<td>Loses 20% per year</td>
<td>Skin sutures</td>
</tr>
<tr>
<td>Polydioxanone (PDS)</td>
<td>+</td>
<td>A</td>
<td></td>
<td>X</td>
<td>Lasts 4–6 mo</td>
<td>Intradermal sutures</td>
</tr>
<tr>
<td>Polyglycolic acid (Dexon)</td>
<td>+</td>
<td>A</td>
<td></td>
<td>X</td>
<td>Lasts about 1 mo</td>
<td>Intradermal sutures, sutures for fascia, muscle, mucosa, or subcutaneous tissue</td>
</tr>
<tr>
<td>Prolene</td>
<td>0</td>
<td>N</td>
<td></td>
<td>X</td>
<td>Lasts a long time</td>
<td>Skin sutures</td>
</tr>
<tr>
<td>Silk</td>
<td>+++</td>
<td>N</td>
<td></td>
<td>X</td>
<td>Loses strength within 1 yr</td>
<td>Very clean skin wounds, especially on eyelids</td>
</tr>
</tbody>
</table>

A = absorbable, N = nonabsorbable, 0 = no tissue reaction, +++ = highly reactive.

Suturing Techniques

When suturing the edges of a wound together, it is important to evert the skin edges—that is, to get the underlying dermis from both sides of the wound to touch. For the wound to heal, the dermal elements must meet and heal together. If the edges are inverted (the epidermis turns in and touches the epidermis of the other side), the wound will not heal as quickly or as well as you would like. The suture technique that you choose is important to achieve optimal wound healing.

Sutures should be placed so that the skin edges are everted to ensure that the dermis is touching. This technique is important for proper healing. (From McCarthy JG (ed): Plastic Surgery. Philadelphia, W.B. Saunders, 1990, with permission.)
SAFE SURGERY CHECKLIST

BRIEFING: Team Brief before the start of the list (led by any member of staff)
- All team members introduce themselves and their role for the theatre session
- Go through operating list and check:
  - Are there any changes to the team expected during the list?
  - Is the list correct and has enough time been allowed?
  - Are the procedures understood and is equipment/blood available?
  - Are there any problems anticipated?

When patient arrives in theatre (Anaesthetist/assistant)
- Check patient identification (with ID band if possible)
- Establish monitoring
- Check when the patient last ate and drank
- Check the operation site is marked (limb/side/area)
- Check consent has been obtained and is accurate
- Has the patient had any previous anaesthetic problems?
- Does the patient have any allergies?
- Are there any loose teeth/dentures and has jewellery been removed?

Before surgery starts (Theatre Team)
- All team members introduce themselves (if not done at start of session)
- Check patient identification (with ID band if possible)
- Check operation site is marked (limb/side/area)
- Check consent is correct and discuss a brief surgical plan
- Are antibiotics or VTE prophylaxis required?
- Is a tourniquet required?
- Is high blood loss anticipated and blood available?
- Does the patient have any allergies or implants?
- Is everyone in the team happy to proceed?

End of procedure (Theatre Team)
- Are all swabs and instruments correct?
- Were there any equipment issues that need to be resolved?
- Is there a throat pack to be removed?
- Are there any drains, nasogastric tubes or catheters in situ?
- Have analgesia, VTE prophylaxis, antibiotics and fluid management been prescribed?
- Are instructions for the ward clear?

DEBRIEFING: End of Theatre list/session (All Theatre Team)
- What went well?
- What didn’t go so well?
- What could we do differently to avoid problems and improve next time?
ASGBI is the SAC-defined Surgical Specialty Association for General Surgery. As such, it is the umbrella association for all the general surgical specialty societies in relation to Revalidation and the accreditation of CPD. The ASGBI International Surgical Congress is among the largest annual gatherings of general surgeons this side of the Atlantic, and all oral paper or poster abstracts presented at the Congress are published - and are citable - via the BJS. ASGBI offers a wide range of membership benefits, such as a quarterly *Journal*, frequent *Issues in Professional Practice* booklets, regular *Consensus Statements*, an iPhone ‘app’ and an interactive website. The Association also provides surgeon-focused indemnity cover through the Surgical Indemnity Scheme, a wholly-owned subsidiary of ASGBI.

In partnership with the Association’s two affiliated charities - **CORESS** and **The Surgical Foundation** - ASGBI’s reach extends internationally, and our influence carries across the profession.

To learn more about the benefits of joining the Association, visit: [www.asgbi.org.uk](http://www.asgbi.org.uk)