Swaziland Male Circumcision for HIV Prevention Clinical Protocol

Version 1.1

August 2009
Overview

The Swaziland Male Circumcision for HIV Prevention Clinical Protocol document is a guide meant for male circumcision (MC) service providers to ensure that high quality and safe male circumcision services are available to the people of Swaziland. This document is to be used in conjunction with the other National documents that have been developed to guide the implementation of MC for HIV prevention in Swaziland including: National Policy on Safe Male Circumcision for HIV Prevention; Strategy and Implementation Plan for Scaling up Safe Male Circumcision for HIV Prevention in Swaziland 2009-2013; and MC Communication Strategy 2009-2013.

This protocol was developed to standardize the clinical components of MC for HIV prevention services across facilities and providers. The provision of MC will incorporate a minimum package of MC for HIV prevention services that will include the routine offer and recommendation of HIV testing and counselling, screening for STIs and treatment when indicated, risk reduction counselling, and the promotion and provision of male and female condoms.

All three WHO-approved methods of circumcision are acceptable; however, the sleeve method is the preferred method of circumcision in Swaziland. General guidelines for neonatal MC are included in this document to guide the provision of infant circumcision Guidelines for infection prevention, management of complications, as well as waste management protocols are also included.

This protocol is not intended to create parallel systems, and whenever possible aligns with other national HIV prevention documents such as the National Guidelines for HIV Testing and Counselling and for Post-Exposure Prophylaxis.
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ACKNOWLEDGEMENTS

The Ministry of Health takes this opportunity to acknowledge the following for their immense contribution to the process of developing the Swaziland Male Circumcision for HIV Prevention Clinical Protocol:

MOH leadership with regard to the male circumcision response in general and particularly Dr Vusi Magagula, chairperson of the task force.

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WHO – Dr Benjamin Gama, Dr. Augustine Ntilivamunda; UNAIDS – Sophia Monico Mukasa, Thembisile Dlamini;
UNICEF – Dr. Fabian Mwanyumba
USG/PEPFAR – Jennifer Albertini,; PSI – Jessica Green, Mandla Malaza, Victoria Masuku;
FLAS – Dr. Ladi Chonzi, Dudu Simalane, Glenda Stanislaw.

Partners – UN for Technical and financial Support -WHO, USG PEPFAR - Technical and financial Support (Special appreciation goes to WHO for technical support and guidance through provision of helpful documents in the development of the protocol. More thanks extended to Jason Reed from the Centre for Disease Control for technical guidance and inputs herein.

Particular mention must be made of major contributions technically and in time by Dr. Adam Groeneveld who put a lot of effort in coming up with the first draft of the protocol which laid the foundation for its improvement.

Special mention also goes to the Family Life Association of Swaziland (FLAS) who pioneered MC for HIV prevention in Swaziland and whose experiences have guided the development of this document.

Finally the Ministry would like to urge all current and future providers of MC services to adhere to this guidance document as it defines the basic national standards and guidelines for facilities to provide safe, quality MC services.
1. **INTRODUCTION**

All efforts and activities with respect to the scale up of male circumcision (MC) in Swaziland have one goal: to bring about a reduction in HIV incidence and prevalence rates, which have been the highest in the world for the past several years. Swaziland’s MC Policy and Implementation Strategy outline the Government of the Kingdom of Swaziland’s (GOKS) commitment to provide voluntary MC for HIV prevention services to 80% of HIV-negative males 15-24 years of age between 2009 and 2013. The aim of this ambitious campaign for HIV prevention is to help those who are HIV negative to stay negative. This is accomplished via reduced biological risk of HIV acquisition by surgical removal of the foreskin, combined with life-long behavioural risk reduction strategies following MC surgery.

Swaziland is a relatively small country with a small, homogeneous population observing the same cultural practices. The prevalence of male circumcision is very low throughout Swaziland because traditional circumcision is practically nonexistent. Thus, MC may be implemented with little interference of conflicting cultural norms.

It is important that the administrative and clinical processes of MC be as uniform as possible throughout the country to ensure that Swazi males seeking care receive the same quality, safe medical services wherever they access services. This protocol has been written to guide service provision to facilitate standardization. Standardization has the added benefits of more easily managing commodities, streamlining training activities, determining personnel competencies, assessing quality, and ultimately ensuring safety.

**Note:** This protocol is not intended to instruct those without formal training in male circumcision to provide the surgery. All persons providing MC for HIV prevention services should receive formal training, competency assessment, and continual support for assuring and updating skills. This protocol is intended to guide those already trained and competent in provision of clinical MC services on the standard MC for HIV prevention approach in Swaziland.

The information provided in this Protocol is based upon experience from Swaziland’s ‘Circumcision Saturdays’, the WHO/UNAIDS/Jhpiego *Manual for Male Circumcision under Local Anaesthesia*, and the National MC Policy and Implementation Strategy. The Ministry of Health recommends the application of the Protocol wherever MC services are implemented. Frequent reference is made throughout this Protocol to other documents which provide additional or more detailed information, photographs, illustrations, and additional references to further guide performance of clinical services, as well as assess and improve program quality.

2. **OBJECTIVES**

The objective of the *Swaziland Male Circumcision for HIV Prevention Clinical Protocol* is to standardize the clinical components of MC for HIV prevention services, so that those providing care can easily reference a single source for guidance. This Protocol presents a comprehensive description of all clinical processes involved, categorized generally by topic.
and presented in a suggested chronological order. The primary purpose of standardization is patient safety, followed by service quality.

3. A MINIMUM PACKAGE OF HIV PREVENTION SERVICES

Because surgical removal of the foreskin only partially reduces a man’s risk of heterosexually acquiring HIV, and does not reduce HIV transmission from men to women, MC must be accompanied by a complementary package of related HIV prevention services. In Swaziland, all facilities offering MC for the purposes of HIV prevention must incorporate and provide all components of the minimum package of MC for HIV prevention services. These include:

- Routine offer and recommendation of HIV testing and counselling so that clients may know their HIV status and better understand the link between MC and HIV
- Screening for STIs (and treatment, when indicated) since STIs increase a person’s risk of acquiring or transmitting HIV
- Risk reduction counselling to ensure that clients understand the need for abstinence from sexual activity during the six weeks of wound healing, as well as the necessity for safer sexual practices indefinitely hereafter. Life-long risk reduction strategies are necessary because MC is not 100% protective against HIV infection
- Promotion and provision of male and female condoms to reinforce the counselling messages and empower sexually active males to adopt safer sexual practices.
- Surgical care that is safe and of high quality, performed by trained competent staff in settings that are adequately equipped and environmentally suitable for minor surgical procedures.

CHRONOLOGICAL SUMMARY OF CLIENT SERVICES

The information presented herein is a brief summary only, intended to illustrate the flow and inter-relatedness of service steps. More detailed information on each aspect of the service can be found in Section 4 below.

MC Education & Counselling
In most facilities providing MC for HIV prevention, the clients will receive information and education as part of a group followed by individualized counselling about the MC services package. Information and education may be individualized instead of provided in a group, depending upon the facility and client volume. At the conclusion of the individualized counselling session, clients should complete the Informed Consent.

Offer and Recommendation for HTC
Those with continued interest in MC following MC information and education will be counselled on the need for HIV testing and offered and recommended to undergo HTC.

Clinical Assessment for Surgery Eligibility
Clients will receive a general clinical assessment to determine candidacy for surgery consisting of a targeted medical history and physical examination, including syndromic screening for STIs.
MC Surgery
Eligible clients may undergo surgical preparation followed by circumcision.

Immediate Post-operative Monitoring
After surgery, clients will receive immediate post-operative care, as well as reinforced instructions about healing time, requisite abstinence from sexual activity during wound healing, condoms and instructions on their appropriate use, and the need for routine follow-up, or medical care as needed in the event that complications arise. All verbal instructions will be reiterated by written instructions to the same effect.

Routine Follow-up
On days 2 and 7 following MC surgery, clients should present to the facility for clinical assessment of healing and reinforcement of abstinence and risk reduction counselling. In the event of complications, clients should return to the facility as often as needed, or as instructed by the clinician. A final telephone call should be placed to the patient on day 21.

4. MC INFORMATION AND EDUCATION AND INDIVIDUALIZED COUNSELING

4.1 MC Information and Education
The information and education stage will inform the clients on the general information about MC. Typically, this is done in a group setting where different opinions from the clients may be expressed and misconceptions can be corrected in a relaxed environment. General components of MC education will be covered at this stage. The details described hereunder may be delivered to an individual (instead of a group) when client volume or practice structure precludes group sessions.

4.1.1 Benefits
Following general introductions, the reasons that MC is beneficial would be explained to the group or individual.

- Reduced risk of HIV infection
- Reduced risk of some STIs, especially ulcerative diseases (chancroid and syphilis)
- Reduced risk of urinary tract infections in childhood
- Reduced risk of penile cancer
- Better hygiene
- Reduced risk of HPV and cervical cancer for female sex partners

As partners of clients may be present, staff providing MC should be prepared to answer questions that may be posed by women.

4.1.2 Link Between MC and HIV
Client would then be educated about how HIV more easily enters the body with the foreskin intact because the inner foreskin:

- is very thin and tears easily
- contains a great number of cells that HIV targets to enter the body
• more easily becomes infected with STIs because of the ‘environment’, hence making it easier for HIV to enter the body

4.1.3 Partial Protection
The information and education session leaders will emphasize that MC only reduces the risk of HIV infection by up to 60%; hence, it must be combined indefinitely with other HIV prevention methods:
  • Avoidance of concurrent sexual partnerships
  • Use of condoms during penetrative sex, including demonstration of correct condom use and identification of condom distribution outlets in the facility.

4.1.4 Description of Surgery
At this stage, a general description of the surgery would be given.
  • Washing the groin area with a solution
  • Injecting a local anaesthetic at the base of penis to minimize pain during the operation. Clients will be informed that the injection is uncomfortable.
  • Removal of foreskin and closing of the wound with stitches
  • Information about standard disposal of the foreskin
  • Placement of a dressing to protect the wound
  • Relaxation in a recovery area after the procedure is over

4.1.5 Healing Period
The group should have the healing period described and helped to understand their requisite commitment to abstinence from sexual activity throughout
  • Healing takes at least 6 weeks
  • No sexual activity (oral sex, sexual intercourse, masturbation) may occur for 6 weeks
  • Sexual activity (oral sex, sexual intercourse, masturbation) within 6 weeks of surgery can damage the wound, extend the healing period, and may lead to serious complications
  • Sexual intercourse within 6 weeks of surgery may increase the risk of HIV transmission and acquisition
  • Erections may occur during the healing period and may be uncomfortable, particularly soon after surgery. Emptying the bladder before going to bed may reduce the frequency of erection.
  • Before the six weeks, even if the scar appears healthy, the stress of sexual activity (oral sex, sexual intercourse, masturbation) may result in damage to the healing surgical site and increase the risk for complications and infection with HIV and other STIs.

4.1.6 Risks
Clients should be informed of the most frequently encountered complications at this stage. A more comprehensive list of complications will be presented in the individualized MC counselling session. Presentation should be straightforward but not conducted in a way to purposefully discourage or instil fear. Reassurance should be given that the clinician will make every effort to reduce the chances of these possible risks and that when conducted by
trained providers, complications are rare and follow-up care is provided. The following risks are the most common:

- Bleeding
- Infection
- Pain (rare of a severity to be considered a complication but should be covered)

4.1.7 Male Sexual Reproductive Health
The presenter should emphasize that MC for HIV prevention is only one part of male reproductive health issues. Other male reproductive health issues that should be considered by clients include:

- Gender norms and reproductive health issues, including family planning
- Avoidance of coercive sex
- Prevention of Gender-Based Violence
- Male reproductive health facts and myths, including those about sexual performance related to MC

4.2 Individualized MC Counselling
At the beginning of the individual counselling session, assurance for confidentiality will be given. Some topics that were covered during the general education session should be repeated in the individual counselling session to emphasize their importance, such as, the risks and benefits of MC, abstinence during wound healing, and life-long risk-reduction commitment (avoidance of concurrent sexual partnerships and use of condoms during penetrative sex). In this setting, the messages should be tailored to the individual and covered in more detail through an interactive conversation approach. The counsellor should verify that the client understands how to properly use condoms. The most frequently observed adverse events should be discussed again, and more rare adverse events should also be covered at this stage (anaesthesia reaction, wound disruption, sexual dysfunction, poor cosmetic outcome, excess swelling of penis/scrotum, difficulty urinating). As the more rare adverse events are covered, it should be emphasized that they are uncommon.

MC is a good opportunity to make contact with adolescent boys and provide them with information and counselling about their own sexual and reproductive health and that of their current or future partners. Adequate time should be allowed for counselling before and after the operation.

5. HIV TESTING AND COUNSELING
HIV testing and counselling prior to MC is not mandatory but is strongly encouraged. It shall be provided in accordance with the National HIV Testing and Counselling Guidelines, with particular reference to the facility operational requirements, counselling & testing and ethical considerations outlined in chapters 3, 4, 6 & 8 of the document.

Following individual counselling on MC, the relationship between HIV and MC should be restated and the importance of awareness of one’s HIV status emphasized. Clients should be helped to understand how knowing their own HIV status is important as they consider undergoing MC for HIV prevention. At this stage, an individual risk assessment and a risk
reduction plan should be completed, regardless of whether the client elects to undergo HIV testing. The offer and strong encouragement of HIV testing is then made; however, testing is not mandatory and clients should to be coerced.

5.1 HIV Test Accepted
Clients who accept the offer of an HIV test should have counselling for HIV testing and then have the HIV test performed.

5.1.1 Negative Test Result
For a client that tests HIV-negative, HIV post-test counselling for HIV-negative persons, as directed by Swaziland’s National HTC Policy, should proceed. Following post-test counselling, the client may proceed for Client Clinical Assessment (Section 6, below).

5.1.2 Positive Test Results
For a client that tests HIV-positive, HIV post-test counselling for HIV-positive persons, as directed by Swaziland’s National HTC Policy, should proceed. At this point, MC considerations become secondary, as support is provided for the new HIV diagnosis. The client should be made aware of the absolute need to present to a facility where he may receive care for his HIV and an appointment should be coordinated for him. If the client is having difficulty understanding his HIV diagnosis or the need for linkage to HIV medical care, it may be appropriate to maintain the counselling focus on the HIV diagnosis and not revisit the MC topic.

If a client was already aware of his HIV infection, or if the newly HIV-diagnosed client appears to be coping well with news of his diagnosis, it may be appropriate to revisit the topic of MC, to be certain that he understands that MC for HIV prevention is not recommended for HIV-positive persons. This will give him a chance to ask additional questions and get clarity on why MC would not provide him any HIV prevention benefit. If an HIV-positive client says that he would like to continue with MC despite his HIV diagnosis, he should proceed for the Client Clinical Assessment (Section 6, below). The clinician will then determine whether the individual is suitable for surgery based upon the client’s medical history and physical examination. All HIV-positive clients should receive referral for CD-4 testing as part of routine HIV care and support and to better guide timing of MC.

For those HIV-positive clients who undergo surgery, a special counselling and referral package for MC for HIV-positive persons should be completed.

5.2 Test Refused
Clients who refuse the offer of an HIV test should be encouraged to consider the benefits of knowing his status, and the link between MC and HIV prevention reiterated. The risks of receiving MC without knowing one’s HIV status should be reviewed, including the risks an individual poses to himself and others by being circumcised without knowing his HIV status. Clients who at this time maintain that they want MC despite their unknown HIV status should proceed to Client Clinical Assessment (Section 6, below). The clinician will then determine whether the individual is suitable for surgery based upon the client’s medical history and physical examination.
For those clients who undergo surgery without an HIV test, a special counselling and referral package for MC for HIV-status-unknown persons should be completed. HIV testing should be re-offered at the recovery room and at follow-up appointments on days 2 and 7.

6. CLIENT CLINICAL ASSESSMENT

6.1 Informed Consent
All clients of 18 years and older are required to read and sign the standard Male Circumcision Consent Form, written in both English and SiSwati, prior to the operation. A sample consent form is included below. Clients (or parents/caregivers of minor clients) should have the content of the Consent Form explained to them in plain language, have the opportunity to ask questions, and have all of their questions answered prior to signing the form. The staff member should ask questions of the client throughout the process to ensure that they understand the information that is being provided. Clients should be reminded that they may choose not to be circumcised, and if there is any indication that they are not ready to sign the Consent Form, they should be encouraged to reflect upon the information for a few days and return to the facility when they are ready.

Before signing the Consent Form, the client should have a clear appreciation for the following:
- Benefits and risks of MC
- Expectations
- Client responsibilities, including follow-up
- Indemnity
- Special permission to follow up at a later date

Clients under 18 years of age, as well as those who lack the capacity to comprehend the information and make their own necessary decisions, need to have their consent signed by a parent or legal guardian.
Sample Consent Form:

Male Circumcision Consent Form

Information about Circumcision

Circumcision is a minor surgical procedure for removing the fold of skin (the foreskin) that covers the front area of the penis. It is done after injecting a local pain medicine at the base of your penis to lessen the amount of pain at the time of the procedure. You may feel pain or discomfort from the needle. In very rare cases, men can have an allergic reaction to the medicine. The procedure takes about 20-30 minutes. You will be able to rest at the clinic for as long as necessary, normally about 30 minutes after the procedure. You will be given Panadol to take home and directions on how to care for the wound. If you follow these directions, the chances of your having problems are very small.

Follow-up Visits

You will come back to the clinic 2 days after the circumcision. The doctor will check your penis to make sure there are no problems or bad effects from the circumcision. You will receive treatment necessary for any problems that are found. If you feel heavy pain, swelling, bleeding or any signs of infection that you think are not normal at any time, you should return to the clinic or nearest health facility immediately or call the emergency phone number that will be provided to be examined by medical staff. Because it is important for the skin to heal properly after the procedure, you must not have sex for at least six weeks after the circumcision.

Risks and Discomforts

As with any surgical procedure, there are risks associated with circumcision. They include the following:

- Bleeding;
- Swelling;
- Pain;
- Infection;
- In very rare cases, permanent injury, numbness, loss of sensitivity, mutilation or total loss of the penis; and
- There is also the risk of HIV or other infections if you have sex before the wound is fully healed – usually six weeks after the procedure.

You should be aware that circumcision does not fully protect you from HIV and AIDS or other sexually transmitted infections. Whether circumcised or not, you should protect yourself from HIV by abstaining from sex, being faithful to one partner whom you are sure is HIV-negative or by using condoms correctly every time you have sex.

Please feel free to ask any questions about the circumcision procedure or about the risks and benefits of circumcision before making your decision to be circumcised in this clinic. If,
after weighing all the factors, you choose to be circumcised, please sign the statement below.

I have read this information form, or it has been read to me, and all my questions have been answered. I understand the risks and benefits of circumcision and agree to be circumcised at this clinic.

________________________

Client name

________________________

Client signature

________________________

Date

________________________

Staff name

________________________

Staff signature

________________________

Date

6.1.2 Assent of Adolescents

Adolescents who are mature enough to appreciate the risks and benefits associated with a medical procedure, such as MC or HIV testing, should not be subjected to the procedure without their informed consent. Healthcare workers should be guided in their response to adolescents by human rights principles: all adolescents have a right to use health services. Healthcare workers should act in the best interest of the adolescent with an understanding of his evolving capacities and ability to make independent decisions. In some situations, a healthcare worker may need to judge whether an adolescent has the maturity to request, and consent to, MC, independent of his parent or guardian.

6.2 Biographical Data

The client assessment process includes the collection and recording of the following biographical data:

- Name
- Date of birth/age
- Marital status
- Domicile (home address)
- Contact details (telephone numbers, including cell phone number)
- Next of kin
- Employment details (where applicable)

6.3 Medical History and Physical Examination

The MC team needs to ensure that all clients are fit for anaesthesia and surgery. If there is any doubt about the suitability, then they should be referred to a higher level of care.

Though there are few contraindications to MC under local anaesthesia, it must be remembered that MC is a minor surgical procedure. Therefore, there are a few absolute contraindications and relative contraindications to performing MC, based upon clinical signs and reported symptoms obtained as part of the medical history and physical examination.

6.3.1 Absolute Contraindications to MC Surgery
Persons with signs or symptoms of the following should have the MC deferred until the condition has been treated or be referred to a higher level of care:

- Acute medical condition/infection
- Febrile illness
- Anatomical abnormalities of the penis, including hypospadias and epispadias
- Chronic paraphimosis (unless highly skilled/experienced MC surgeon)
- Genital ulcer disease
- Urethral discharge
- Chronic disorders of the penis/foreskin, such as filariasis (unless highly skilled/experienced MC surgeon)
- Other obvious visible pathology of the penis, such as penile cancer
- Personal or family history of bleeding disorders, such as haemophilia (such clients require careful pre-operative assessment and medical preparations that may only be available through higher levels of care)
- HIV infection with CD4 count <350
- Evidence of WHO Stage III or IV HIV infection/disease

6.3.2 Relative Contraindications to MC Surgery

Whether persons with the following signs or symptoms should undergo MC depends upon the experience and/or discretion of the surgeon:

- Phimosis
- Balanitis
- Scarification of the frenulum
- Penile warts (extensiveness of infection is important)
- Balanitis Xerotica Obliterans
- Other genital abnormalities, such as hydrocele causing scrotal swelling
- HIV infection with unknown or unverifiable CD4 count in a client with WHO stage I or II HIV infection/disease
- HIV infection with CD4 count ≥350

6.3.3 Medical history

The medical history should be focused and includes assessment of the following:

- Current general health
- Current/recent medications
- Medication allergies
- History of bleeding disorder, anaemia, or haemophilia, including family history
- Problems with penile erection or other concerns about sexual function
- Reported symptoms indicative of genital disease, including STI (burning sensation of the penis, pain on urination, difficulty urinating, frequent urination, discharge, itching)
- HIV Status (and CD4 count, if HIV-positive)
- Uncontrolled diabetes
- Uncontrolled hypertension
6.3.3.1 HIV Status and the Medical History
The HIV status of the client should be recorded as part of the medical history. If the client was not tested for HIV on site, then documentation of HIV test results from a known HTC provider within the previous 90 days may be permissible. For HIV negative clients, simply record the test result and continue with the medical history.

6.3.3.1.1 HIV Positive
Inquire about written laboratory CD4 count test result from within the prior 90 days
- If \( \geq 350 \), proceed with the Client Clinical Assessment
- If \(< 350\), MC is contraindicated
- If a client’s CD4 count is unknown or if no written CD4 count is available, eligibility determination should be deferred until after the client is able to have a CD4 count test performed or produce written documentation of a CD4 count within the prior 90 days, unless at the discretion of the surgeon, the Client Clinical Assessment may proceed

6.3.3.1.2 HIV Status Unknown
The importance of knowing one’s HIV status should be reinforced to the client and a recommendation for HTC repeated. If the client then agrees to HIV testing, the medical history should continue, as appropriate, once the HIV test is completed and results are known. If the client continues to decline an HIV test and wishes to proceed with assessment for MC eligibility, the taking of the medical history should proceed. As described in Swaziland’s National Policy on Safe Male Circumcision for HIV Prevention, “HIV testing and counselling shall be routinely recommended and offered on a voluntary basis to all men prior to circumcision, but refusal to take an HIV test is not grounds for denial of the service.”

6.3.4 Physical Examination
Temperature, blood pressure, pulse rate, respiratory rate, and weight should be taken and recorded.

A general physical examination should be performed checking for clinical signs of wasting, jaundice, pallor, lymphadenopathy, cyanosis, and/or oral thrush, any of which may be indicative of medical conditions that are absolute or relative contraindications for MC.

A specific genital examination should also be performed. The foreskin should be easily retractable and the glans exposed. The urethral meatus should be near the tip of the glans and free of scarring/disease. Clinical signs of urethral discharge, smegma under the foreskin, phimosis, paraphimosis, adhesion of prepuce to the glans, balanitis, genital ulcer disease, condyloma lata, condyloma acuminata, and/or epispadias/hypospadias may be absolute or relative contraindications for MC.

7. SURGERY

7.1 Surgical Environment, Equipment and Supplies
Circumcision should be performed in appropriate facilities, using appropriate equipment and with adequate instruments and supplies. Surgical equipment and instruments wear out with repeated use, disinfection and sterilization. Periodic review of these items is therefore necessary.

Disposable surgical supplies may come in a pre-packaged form, may be bundled at the site providing the surgery, or may be purchased separately and used as needed. Reusable surgical instruments required to perform each MC are typically bundled together prior to being autoclaved.

7.2 Preoperative Preparations

7.2.1 Before Surgery – The Client
The day of the surgery, the patient should wash the genital area with soap and water, including the area under the foreskin. Shaving of the pubic hair is not recommended. The patient may continue his normal diet; it is not necessary to go without food or water prior to MC surgery. Prior to entering the operating theatre, the client should be advised to empty his bladder.

7.2.2 Before Surgery – Surgical Staff

7.2.2.1 Hand Hygiene
All members of the surgical team should wash hands and arms to the elbow with a non-medicated soap and ensure hands and nails are not visibly soiled. Jewelry should be removed, fingernails trimmed or filed, and artificial nails and nail polish removed.

7.2.2.2 Surgical Scrub
Before each MC surgery, any staff member who during the course of the surgery will touch the sterile surgical field, surgical instruments, or the wound should scrub their hands and arms to the elbow for 5 minutes with either a medicated soap and water or an alcohol-based solution.

7.2.2.3 Gloving
After completing the surgical scrub, put on sterile operating gloves, taking care not to contaminate the sterile outer surface of the gloves. Double gloving is recommended.

7.2.2.4 Protective Eyewear and Surgical Masks, Caps, Shoes, and Gowns
Protective eyewear, surgical masks, surgical caps, and surgical shoes or shoe covers are all recommended. Sterile surgical gowns are not required; however, a clean apron should be worn.

7.3 Anaesthesia
In principle, MC for HIV prevention should only take place under local anaesthesia, not general or spinal anaesthesia. Local anaesthesia is preferred because it is easier to administer, has fewer risks, is cheaper, and the client can go home on the same day.

7.3.1 Anaesthetic Agent(s)
The recommended anaesthetic agent is 1% plain lignocaine (lidocaine). The lignocaine must not contain epinephrine (adrenaline). Generally, the maximum safe dose of plain lignocaine is 3 mg per kg of body weight. Bupivacaine may be combined with lignocaine to provide a longer duration of anaesthesia than with lignocaine alone; although, if lignocaine/bupivacaine is used, the dosages must be adjusted according to the weight of the client.

For superior post-operative pain control, a dose of an analgesic, such as paracetamol or other recommended analgesic, may be given 1-2 hours before surgery, followed by another dose 6 hours later (adult dose 500 mg).

7.3.2 Anaesthetic Administration
Regardless of whether the surgeon administers the local anaesthetic him/herself, it is the surgeon’s responsibility to check the vial(s) of local anaesthetic to ensure that the correct agent at the correct concentration has been selected, that the vial is free of contamination, and that the agent is not beyond the expiry date.

Once the client has been comfortably positioned on the surgical table, the area around the base of the penis should be cleaned with rubbing alcohol to disinfect the local anaesthetic injection sites. Though shaving of the public hair is not recommended, trimming of the public hair to allow for better visualization of the injection sites is permissible. The ring block technique (which includes blocking both branches of the dorsal penile nerve) is used.

Throughout the provision of local anaesthetic, the staff member performing the block should always gently aspirate to ensure that the needle is not in a blood vessel prior to injecting the local anaesthetic, as indicated by blood entering the syringe on aspiration.

After the appropriate volume of local anaesthetic has been drawn into the syringe, attach a 23-gauge needle and insert subcutaneously at the 11 o’clock position at the base of the penis (urethra is 6 o’clock position). After gently aspirating, inject approximately 0.1 ml of local anaesthetic. Without withdrawing the needle, advance it into the subdermal space, making sure that the needles is freely mobile. Gently aspirate. Inject 2-3 ml of local anaesthetic to block the branch of the dorsal penile nerve (the other branch will be blocked through a separate injection). Advance the needle subcutaneously around the side of the penis, gently aspirate, and then inject 1 ml of local anaesthetic. Withdraw the needle completely and repeat the procedure at the 1 o’clock position to complete a ring of anaesthetic. It may be necessary to inject (subcutaneously) at the 6 o’clock position at the base of the penis, to fully complete the ring of anaesthetic (being careful to avoid the urethra). Though the ring block is usually sufficient to achieve anaesthesia, it may be helpful in some cases to separately administer local anaesthetic to the frenulum area. Once the local anaesthetic has been injected, 3-5 minutes should elapse prior to tissue clamping and cutting.

7.4 Surgical Prepping and Draping of the Patient

7.4.1 Skin Preparation
While the local anaesthetic is taking effect, the skin around the surgical area should be prepared. The staff members prepping the skin should inquire from the client whether he is allergic to iodine. If he has an allergy to iodine, a chlorhexidine gluconate solution may be used for skin preparation. Otherwise, the skin should be prepared with povidone iodine antiseptic solution, starting with the glans and the shaft of the penis and moving out to the periphery. Holding the penis with a swab, retract the foreskin and apply the solution to the glans. The prepared area should include the penis, the scrotum, the adjacent areas of the thighs and the lower part of the abdomen. The solution should remain wet on the skin for at least two minutes.

7.4.2 Draping
The healthcare worker draping the patient should scrub/disinfect their hands, and apply sterile gloves prior to covering the patient with sterile drapes. Leave only the operative area uncovered; a single drape with a hole in it for the penis is better than four drapes secured with towel clamps.

7.5 Retracting the Foreskin and Dealing with Adhesions
Before retracting the foreskin, gently pinch the foreskin with an artery forceps to ensure that the local anaesthetic has taken effect. If there is still sensation, the surgeon should wait an additional 2-3 minutes before proceeding. If after 2-3 minutes, there is still sensation, more local anaesthetic should be given. As stated previously, it may be helpful to separately administer local anaesthetic to the frenulum area.

Once anaesthesia has been achieved, the foreskin should be fully retracted. If the opening of the foreskin is tight, is may be necessary to dilate it with a pair of artery forceps. Care must be taken just to stretch the aperture of the foreskin and not to push the forceps in too far, so as not to inadvertently dilate the urethra/cause injury to the urethra and glans. Any adhesions should be separated by gentle retraction or use of a blunt probe, such as a pair of closed artery forceps. If adhesions are particularly dense, it may be advisable to refer the client to a more experienced surgeon.

7.6 Marking the Line of the Circumcision
With the foreskin in a natural “resting” position, indicate the intended line of the incision with a marker pen. The line should correspond with the corona. Some uncircumcised men have a very lax foreskin with is partially retracted in the resting position. In such cases, it is better to apply tension to the foreskin using artery forceps at the 3 and 9 o’clock positions before marking the circumcision line. However, care should be taken not to pull the foreskin too far forward before marking, as this will result in too much skin being removed.

If a marker pen is not available, dabs of gentian violet may be applied with a blunt probe, tip of an artery forceps, or other sterile instrument. Alternatively, pinch marks made with a toothed forceps may be used to mark the circumcision line. Some surgeons prefer to mark the line of incision by making a very shallow incision using a scalpel. This may be useful on clients who are darkly pigmented, as the marker pen and gentian violet may not be very clear. Marking the line with a scalpel carries the added risk of accidental injury to surgical staff and cutting too deeply. Care should be taken to cut just through the skin so that blood vessels are not divided.
7.7 Removal of the Foreskin

After the line of circumcision has been marked, removal of the foreskin may proceed. There are three surgical methods recommended in the WHO/UNAIDS/Jhpiego Manual for Male Circumcision Under Local Anaesthesia: 1) dorsal slit; 2) forceps guided; and 3) sleeve resection. All are equally safe with equivalent long-term results. The three methods vary by levels of requisite surgical skill and time required to complete the procedure. The sleeve resection method is the preferred MC method in Swaziland; however, all 3 methods are presented and skilled surgeons should perform the method with which they are most experienced/comfortable.

The surgeon should explain to the client that the foreskin will be disposed of as is customary for all surgeries. If the client asks to take his foreskin with him after surgery, he should be allowed to do so.

7.7.1 Sleeve Resection Method

Step 1. Anaesthesia, prepping and draping, foreskin retraction, and marking the surgical line should all be completed. When performing sleeve resection, two incision lines are marked: an outer and an inner (mucosal) incision line. The intended outer line of the incision is made with a V-shape, pointed toward the frenulum, on the ventral aspect of the penis. The apex of the V should correspond with the midline raphe.

Step 2. Retract the foreskin and mark the inner (mucosal) incision line, 1-2 mm proximal to the corona. At the frenulum, the incision line crosses horizontally (without a V-shape).

Step 3. Using a scalpel, make incisions along the marked lines, taking care to cut through the skin to the subcutaneous tissue but not deeper. As the incision is made, the assistant should retract the skin with a moist gauze swab.

Any significant bleeding vessels should be clipped with an artery forceps and tied or secured with an under-running suture. Electrocautery may be used if available (see Haemostasis, Section 7.8.4). Provided the cut has not been made too deeply, most bleeding will be from the skin edge and can be stopped by simple pressure over a swab.

Step 4. Cut the skin between the proximal and distal incision with scissors.

Step 5. Hold the sleeve of foreskin under tension with two artery forceps, and dissect the skin from the shaft of the penis, using dissection scissors. As dissection proceeds, bleeding vessels may be tied off with under-running sutures or coagulated with electrocautery/diathermy. Once the foreskin has been fully removed, the raw area is exposed.

Step 6. Ensure haemostasis, suture, and apply dressing as described in Section 7.8.4 – 7.10 below.

7.7.2 Dorsal Slit Method
Step 1. Anaesthesia, prepping and draping, foreskin retraction, and marking the surgical line should all be completed. When performing dorsal slit, extra care should be taken in marking the line of incision to ensure that even amount of skin are marked for removal from each side of the penis.

Step 2. Grasp the foreskin with artery forceps at the 3 o’clock and 9 o’clock positions. Take care to apply the artery forceps so that there is equal tension on the inner and outer aspects of the foreskin.

Step 3. Please two artery forceps on the foreskin in the 11 o’clock and 1 o’clock positions. Check that the inside blades of the two artery forceps are lying between the glans and foreskin and have not been inadvertently passed up the urethral meatus.

Step 4. Between the 11 o’clock and 1 o’clock artery forceps, use dissection scissors to make a cut (the dorsal slit) in the 12 o’clock position up to the previously marked incision line.

Step 5. Using dissection scissors, cut the foreskin free, following the previously marked incision line.

Step 6. After the foreskin has been removed, any skin tags on the inner edge of the foreskin can be trimmed to leave approximately 5 mm of skin proximal to the corona. Care must be taken to trim only the skin and not to cut deeper tissue. The raw area is exposed.

Step 7. Ensure haemostasis, suture, and apply dressing as described in Sections 7.8.4 – 7.10 below.

**7.7.3 Forceps Guided Method**

Step 1. Anaesthesia, prepping and draping, foreskin retraction, and marking the surgical line should all be completed.

Step 2. Grasp the foreskin with artery forceps at the 3 o’clock and 9 o’clock positions. Place these forceps on the natural apex of the foreskin in such a way as to put equal tension on the inside and outside surfaces of the foreskin. If this is not done correctly, there is a risk of leaving too much mucosal skin or of removing too much shaft skin.

Step 3. Put sufficient tension on the foreskin to pull the previously made incision line to just below the glans. Taking care not to catch the glans, apply a long straight forceps across the foreskin, just proximal to the mark, with the long axis of the forceps going from the 6 o’clock to the 12 o’clock position (taking the frenulum as the 6 o’clock position). Once the forceps is in position, feel the glans to check that it has not been accidentally caught in the forceps.

Step 4. Using a scalpel, cut away the foreskin flush with the outer aspect of the long straight forceps. The long straight forceps protects the glans from injury; nevertheless, particular care is needed at this stage.
Step 5. Once the foreskin has been removed, release the long straight forceps and expose the raw area.

Step 6. Ensure haemostasis, suture, and apply dressing as described in Sections 7.8.4 – 7.10 below.

7.8 Haemostasis
Minimizing blood throughout the surgical procedure is part of good surgical technique and safe medical practice. Prior to placement of sutures to close the surgical wound, it is necessary to ensure that haemostasis has been achieved. The following techniques can be used to reduce blood loss: compression; temporary occlusion; tying and under-running; and diathermy.

7.8.1 Compression
After the incision has been made, and at any time during the procedure, oozing of blood for cut surfaces can be controlled by applying pressure over a gauze swab for a few minutes. Usually this will stop the oozing of blood.

7.8.2 Temporary Occlusion
Control individual bleeding vessels by applying an artery forceps, taking care not to grasp too much tissue. Alternatively, the vessel can be picked up away from the surrounding tissue using picks ups/forceps (tweezers) and then apply an artery forceps.

7.8.3 Tying and Under-running
Either tie or under-run and tie cut vessels to stop bleeding. The simplest procedure is to tie the vessel below the artery forceps. The basic tie consists of two throws, but many surgeons make a third throw to give the knot extra security. It is important to ensure that the tie will not slip off, particularly in the first few days after surgery during penile erection. An under-running suture is a better technique if unsure of the security of the surgical knot. For an under-running suture, secure the vessel with an artery forceps.

7.8.4 Diathermy
Bleeding can be stopped by coagulation using diathermy, though diathermy is not a requirement for MC under local anaesthesia. Surgeons performing MC for HIV prevention should be adept at performing surgery without diathermy, in the event that power supplies are not reliable, not available, diathermy equipment malfunctions, or when a cut vessel is too large for diathermy to achieve haemostasis. With the proper training, either bipolar or monopolar diathermy may be used. Because the electric current used in monopolar diathermy passes through the base of the penis, there is a risk of extensive coagulation and loss of the penis when the base of the penis is very small. For this reason, monopolar diathermy should not be used in infants and small children. However, monopolar diathermy can safely be used in adolescent and adult males in general, provided that the surgeon has had appropriate training and demonstrated competency. If in doubt, use bipolar diathermy, tying, or under-running sutures to achieve haemostasis instead of monopolar diathermy.

7.9 Suturing
Once haemostasis has been achieved, the surgical wound should be closed with a combination of mattress sutures and simple interrupted sutures.

7.9.1 Mattress Sutures
There are two types of mattress sutures: vertical and horizontal.

7.9.1.1 Vertical Mattress Sutures
Vertical mattress sutures are placed at the 12 o’clock, 3 o’clock, and 9 o’clock position (frenulum as 6 o’clock position).

7.9.1.2 Horizontal Mattress Suture
A single horizontal mattress suture is placed at the 6 o’clock position (frenulum).

7.9.2 Simple Interrupted Sutures
A series of simple interrupted sutures are placed between the mattress sutures.

7.9.3 Suture Material
Small absorbable suture material (3/0 or 4/0) is recommended.

7.9.4 Knot Tying
Knots can be tied by hand or using surgical instruments. Using surgical instruments requires less suture material and thus is more economical.

7.10 Dressing the Surgical Wound
After apposition of the surgical wound with sutures has been achieved, a penile dressing should be placed using a standard technique.

Before applying the dressing, check that there is no bleeding. Minor bleeding from a skin edge will often stop after five minutes of pressure with gauze. Once all bleeding has stopped, place a piece of petroleum-impregnated gauze (tulle gauze) around the wound. Place sterile dry gauze over this, and secure in position with adhesive tape. Take care not to apply the dressing too tightly, as it could restrict the blood supply and cause necrosis of the glans. Strap the dressed penis to the abdominal wall with the glans pointed in the upward direction to reduce swelling.

The dressing should be left in position for 48 hours and removed that the time of the first routine post-op visit (Day 2).

8. POST-OPERATIVE CARE AND MANAGEMENT OF COMPLICATIONS

Post-operative care consists of immediate post-operative monitoring, providing instructions to patient as he leaves, routine follow-up visits, and management of complications (should they occur).

8.1 Immediate Post-operative Monitoring
It is very important that the client remain at the facility/site for monitoring for at least 30 minutes after surgery. It is during this half hour period that the effects of surgical trauma and other complications may become apparent. The surgeons is the one ultimately responsible for the quality of post-operative care, even if s/he is not the one directly monitoring the client.

The following is a summary of the steps involved in post-operative monitoring of clients who have undergone MC under local anaesthesia:

Step 1. Make the client comfortable and handle him gently when moving him as he is received from the theatre

Step 2. Review his record

Step 3. Monitor the client’s vital signs, checking the blood pressure, breathing, and pulse twice, at 15 minute intervals

Step 4. Check the surgical dressing for oozing or bleeding

Step 5. Assess the client’s perception of pain

Step 6. Observe the client’s general condition

Step 7. Administer any drugs or treatment prescribed by the surgeon

Step 8. Provide bland carbohydrates (such as a biscuit) and liquids to raise blood sugar levels

Step 9. Provide the client with instructions before discharging him home

Step 10. Complete the client record form

If the client experiences a particularly painful or prolonged erection in the immediate post-operative period, it can be stopped by letting him inhale one ampoule of amyl nitrate.

8.2 Post-operative Instructions for Client and Discharge

It is very important to inform the client that he should avoid sexual intercourse and masturbation for 6 weeks after the procedure, to prevent breakdown of the wound and preclude any increased risk of disease transmission or acquisition during wound healing. After the 6-week healing period, a condom should then be used to continue to protect the wound during every act of sexual intercourse for at least 6 months. Thereafter, sexual risk reduction strategies should be used indefinitely, not necessarily to protect the wound which should have healed, but to further protect the client from HIV and other STIs. Clients should be informed that they may experience erections, which may be painful, and reassured that this is normal. Frequency of erection may be reduced by emptying the bladder just before going to bed.
The client should be instructed to wear freshly laundered, loose-fitting underwear. Underwear should be changed each day.

Before leaving the facility/site, clients should understand that though complications are rare, he should remain alert for any of the following potential problems:

- Increasing bleeding
- Severe pain in the penis or genital area
- Inability to pass urine or severe pain when passing urine
- Discharge or pus from the surgical wound, and increased swelling

The client should return to the facility/site or seek emergency care is a problem develops. Make sure that the client knows where to go in complications arise.

Post-operative instructions should be provided verbally and in writing (in SiSwati and English), if appropriate. As the client to repeat the instructions to ensure that he has understood them. Give him any medications prescribed, and arrange appointment for follow-up one day 2 (48 hours) and day 7. Check that a responsible adult is available to accompany the client home (this is of particular importance for clients who are below the age of consent). In this instance, it is helpful to also give the instructions to any accompanying adult. Once instructions have been provided, the surgeons or designated staff member should assess whether the client is ready for discharge and then discharge the client when appropriate.

8.3 Routine Follow-up Visits
Routine follow-up visits are scheduled for day 2 (48 hours after surgery) and day 7 following surgery. In addition, a follow-up telephone call is placed to the client on day 21.

8.3.1 Follow-up of Days 2 and 7 (Day of Surgery as Day 0)
A designated healthcare provider should perform a focused examination to assess the progress of healing and the surgical site for clinical signs of complications. On the Day 2 visit, the dressing should be removed. If the dressing has dried out, it should be gently dabbed with an antiseptic solution (aqueous cetrimide, Savlon) until the dressing softens. If there is bleeding or oozing when the dressing is removed, the client may need to have another dressing applied for an additional 24-48 hours and then be rechecked. After the dressing has been removed, the client can shower twice a day and should gently wash the genital area with mild soap and water.

On both visits (Days 2 and 7) the client should be asked and medically examined for symptoms/clinical signs of any of the following since surgery: bleeding; infection; pain; wound disruption; sexual dysfunction; poor cosmetic outcome; excess swelling of penis/scrotum; or difficulty urinating. The client should also be asked about his satisfaction with the services provided and encouraged to provide feedback that may help improve the services. Additional examinations should be performed as indicated by the case history and symptoms reported by the client. If the client has a problem that cannot be resolved, another visit should be scheduled or he should be referred to a higher level of care. The follow-up visits should be documented in the client’s medical record.
8.3.2 Telephone Call on Day 21
An attempt should be made to contact all clients by telephone on post-operative day 21 to assess their continued post-operative progress. Prior to the call, the staff member making contact should review the client’s medical record to see whether and how often he returned to the facility for follow-up care. Those clients who did not return at all or only returned to the facility once should be asked about whether they sought care elsewhere and the main reason that they did not return for care. All clients should be asked whether they experienced any of the following symptoms since surgery: discharge or bleeding from the wound; difficulty urinating; fever; pain or other distress; or swelling of the penis or scrotum. Clients should be allowed to report other symptoms/concerns. Those clients reporting these or other symptoms should be asked whether the symptoms have resolved and when. Those experiencing ongoing complications should be advised to return to the facility (or a facility that is close/convenient) for follow-up care. The offer may also be made for a member of the surgical team to contact the client again by telephone. All clients should be offered the opportunity to return to the facility at any time with questions, feedback, or suggestions.

8.4 Emergency Follow-up
Clients who come for an emergency follow-up visit should be seen immediately. Staff should be alert to the possibility of excessive bleeding or infection.

Step 1. Examine the client immediately and check all areas related to the complaint.

Step 2. Read the medical record, if available.

Step 3. Ask the client about the sequence of events since the operation, including: any problems during the surgery or in the recovery period; how problems developed; any increase in discomfort; and any medication or other treatments taken.

Step 4. Arrange for treatment of any problems that can be handled on an outpatient basis.

Step 5. Refer the client to a higher level of care for treatment of potentially serious complications.

Step 6. Not in the client’s medical record all problems and actions taken.

Step 7. Inform the facility where the MC was performed about the follow-up visit (if MC performed elsewhere or if MC team no longer at the location).

8.5 Recognition and Management of Complications
Complications may arise during or after surgery and are categorized according to timing. If complications occur during or after the MC surgery, the team should inform the client and if appropriate his family, about what has happened and advise them of the plans to address the complications.

8.5.1 Complications Occurring During Surgery

8.5.1.1 Excessive Adhesions
If the client has phimosis and the foreskin cannot be retracted, there is uncertainty about what may be found once a dorsal slit is made. Depending upon the experience of the surgical team, it may be better to refer the client to a higher level of care. If the dorsal slit has already been made, it will need to be repaired, using sutures to stop bleeding. The wound should be covered with a gauze swab which may be held in place by tight underpants to keep the area as clean as possible; a surgical dressing is not possible as the client will need to urinate. Arrangements should be made with the referral hospital for follow-up as soon as is convenient for the client, and in any case within 24-48 hours.

8.5.1.2 Excessive Bleeding During Surgery
Don’t panic. Place a gauze swab under the penis and a second gauze swab over the bleeding point, apply firm pressure, and wait 5 minutes (timed by the clock). After 5 minutes, slowly lift off the gauze swab. If the bleeding has not stopped after 5 minutes, the site of the bleeding will be obvious. Apply a haemostatic artery forceps to the bleeding point. If this does not control the bleeding, apply pressure over a gauze swab for a further 5 minutes (timed). At the end of this time, gently lift the swab again, and under-run the bleeding area with a figure of eight suture. Larger vessels generally run the length of the penis, and the suture should be proximal to the bleeding point (on the side towards the base rather than the tip of the penis). If the bleeding continues, the man should be transferred to a referral centre as an emergency, or a more experienced surgeon should be called to help.

8.5.1.3 Bleeding from the Frenular Artery
If there is excessive bleeding from the frenular artery, an under-running haemostatic stitch should be used to occlude the artery. Great care is needed not to bite too deeply, as the urethra is near the surface and can easily be damaged.

8.5.1.4 Severing of the Glans
If part or all of the glans is severed, it should be wrapped in sterile paraffin gauze and placed in a polythene bag. The client and severed glans should be transferred as soon as possible to a referral centre, where it may be possible to reattach the glans.

8.5.1.4 Accidental Injury
Accidental injury can include injury to the glans (described above) or too deep an incision, resulting in excessive bleeding that is difficult to control. The steps outlined above for ‘Excessive Bleeding During Surgery, 9.5.1.2, and Severing Glans, 9.5.1.4, should be followed as indicated, and the client transferred to a referral centre. If possible damage to the urethra has occurred or transport time to a referral centre will be long, a urinary catheter may be inserted, and the penis covered in gauze and taped in place.

8.5.2 Complications Within 48 Hours After Surgery

8.5.2.1 Bleeding
This is the most likely complication in the first 24-48 hours. A small amount of bleeding onto the gauze dressing is usual but may alarm the client. If the client returns to the facility/site with blood-soaked dressings, these should be removed and the wound inspected for an obvious bleeding point. If there is fresh blood from the skin edge, additional suture(s) should be inserted. This will require a full sterile procedure, as for the original operation,

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including local anaesthesia and sterile draping. Usually placing one or two additional mattress suture over the area will stop the bleeding.

**8.5.2.2 Haematoma**
Haematoma may be associated with considerable bruising/skin discoloration. Generally, haematoma are best left alone, unless they are very large or there is continued bleeding. A clean dressing may be applied and the client asked to return for re-evaluation in 24 hours. Alternatively, the client may be sent to the referral centre with a clean dressing in place.

**8.5.2.3 Wound Disruption**
Though rarely seen in the first 48 hours, wound disruption is sometimes seen in association with subcutaneous bleeding and haematoma formation, when the stitches cut out. The client should be sent to a referral centre where the wound may be left to heal by secondary intention or sutured again. When wound disruption occurs within 48 hours of the operation, it is usually better for the surgeon at the referral centre to explore and re-suture the wound.

**8.5.3 Complications Between Days 3 and 14**

**8.5.3.1 Infection**
After 2-3 days, the most likely complication is wound infection. Infection often causes increasing pain, and clinical signs such as redness and purulent discharge may be present. Such clients should be given an appropriate antibiotic, advised to take frequent showers, and to put a clean dressing on the wound between showers. If the infection is severe, he should be advised to lie on his back so that the penis is the highest point on his body, to promote drainage of lymphatic fluid and the healing process. Sitting is a bad position. The wound may be left without a dressing but should be protected from flies.

**8.5.3.2 Wound Disruption**
When stitches cut out during this time period, there is usually an infection, and the client should be given an appropriate antibiotic. Because more than 48 hours have passed since the surgery, do not attempt to re-suture the wound, as the new sutures will likely also become infected and cut out. The wound should heal by secondary intention, and the client should be seen regularly at the facility/site until the wound has healed. Wound disruption usually leaves an untidy cosmetic result for the first few months. Reassure the client that the appearance usually returns to normal after about a year.

**8.5.3.3 Worsening Infection with Signs of Gangrene**
A rare but serious risk of genital surgery is infection with multiple types of bacteria, causing progressive skin loss. When this happens, the blood supply is cut off, and the skin becomes necrotic and turns completely black. This is also known as Fournier’s gangrene, synergistic gangrene, or necrotizing fasciitis. It is more common among men with diabetes. Any client with signs of spreading infection or black gangrenous skin should be urgently transferred to a referral centre, where it is usually necessary to remove the dead skin under general anaesthesia.

**8.5.4 Late Complications**
After the first two week period, clients may complain of the following:
• Decreased or over sensitivity of the glans
• Cosmetic concerns from ragged scars or unsightly surgical wounds
• Persistent adhesions at the corona or inclusion cysts (which can be avoided by full retraction of the foreskin during surgery and careful division of adhesions)
• Discomfort during erection if the scrotal skin is pulled up the shaft causing a tight scrotal sac (which can be avoided by proper marking of the incision line to avoid excess foreskin removal)
• Torsion (misalignment) of the skin of the penile shaft (which can be avoided by carefully aligning the midline raphe with the frenulum when placing the horizontal mattress suture).

Such cases may be referred to a higher level of care for evaluation.

8.5.5 Location of Management of Complications

Some complications arising during or after MC can be handled in a clinic setting; others require referral to a higher level of care for management (a referral centre). An MC team working in a clinic setting should have standing arrangements with the nearest referral centre, so that there are no obstacles encountered when referral is required (such as questions of payment responsibility). Though many complications can be managed in the clinic setting, emergency transfer may sometimes be needed. When emergency transfer is required, the following rules apply:

• Client should be transferred by ambulance, lying flat
• Client and his family should be provided with a full explanation of what is happening and why
• A clear note should be sent to the referral centre with the client
• Client should be told not to eat and, depending upon the length of the journey, not to drink, as general anaesthetic may need to be administered by the referral centre. Any accompanying family member should also be given this information.

9. NEONATAL MALE CIRCUMCISION

9.1 Pre Operative Information and Education

Neonatal male circumcision (NMC) is a long term strategy to reduce sexual transmission of HIV. Preoperative information and education must include the benefits of male circumcision as outlined in section 4.1.1, the simplicity and safety of the procedure, and the rare complications that may occur postoperatively. This information should be disseminated routinely to pregnant women at antenatal clinics and to mothers during postnatal visits and/or during the provision of child immunization services.

9.2 Eligibility for NMC

The healthcare provider should inquire about the general health of the infant, including whether the pregnancy and delivery were normal. Infants born at term, with a birth weight equal to or greater than 2.5 Kg and whose age is less than or equal to 6 weeks from the date
of birth are eligible for NMC. Parents are encouraged to seek circumcision of their male neonates as early as possible, preferably within the first week. After 6 weeks of age, circumcision should be performed by provider who is qualified to perform MC on infants. The most appropriate type of anaesthesia and surgical procedure will depend on the age of the child.

Circumcision should be offered to neonates/infants irrespective of their HIV exposure status.

**9.3 Contraindications for NMC**

The following are contraindications for NMC:

- Family history of bleeding disorders
- Premature infants, i.e. infants born at a gestational age < 37 weeks
- Infant birth weight < 2,500 grams
- Neonatal sepsis, jaundice, and other haematological disorders or severe illness requiring hospitalization of the infant
- Penile abnormalities such as:
  - Penile torsion / median raphe not in midline
  - Hypospadias / blind urethral pit
  - Buried penis
  - Penile-scrotal web
  - Hydrocoele
  - Dorsal hood / ventral foreskin missing
  - Mega meatus
  - Ambiguous genitalia
  - Any other abnormality that may require consultation with urologist

**9.3 Surgery**

**9.3.1 Written Consent**

After preoperative information, a written consent must be obtained prior to initiating the procedure. A parent, legal guardian or caregiver must give the consent.

**9.3.3 Environment**

Neonatal male circumcision procedure should be performed in a clean room. The procedure room should adhere to infection control protocols. A sterile theatre environment is not an absolute requirement to perform neonatal circumcision.

**9.3.4 Hand Hygiene and washing**

A standard surgical hand scrub is recommended prior to beginning the first surgical procedure of the day and only hand washing with soap and water between each procedure
is required. If the provider leaves the procedure room for any reason (e.g. for lunch, to a bath room etc.) then upon returning, the standard surgical hand scrub must be performed prior to initiating the next procedure.

9.3.5 Gloving

After completing a thorough hand washing, sterile gloves must be worn taking care not to contaminate the sterile outer surface of the gloves. Gloves should not be reused.

9.3.6 Protective eyewear and apron

Use of protective eyewear and clean aprons are recommended but not a prerequisite.

9.4 Anaesthesia

Local anaesthesia using a 1% plain lignocaine (without epinephrine/adrenaline) is recommended for NMC. General anaesthesia should not be used.

The recommended method of administration local anaesthesia for NMC is the dorsal penile nerve block using 1% plain lignocaine. A maximum of 3mg/kg body weight should be used. Use an 18 gauge needle to draw up the 1.0 ml of the anaesthetic agent into the syringe. After making sure all the bubbles are out of the syringe, change the 18 gauge needle to a 27 gauge needle. Insert the 27 gauge needle subcutaneously at the 11 o’clock position, just distal to the junction of the pubis and the penis, and after gently aspirating, inject a small portion of the anaesthetic agent. Without withdrawing the needle, advance it into the subdermal space and while ensuring that the needle is freely mobile, inject the local anaesthesia continuously. Once 0.5 ml has been administered in the branch of the dorsal penile nerve, withdraw the needle completely. Repeat the procedure at the 1 o’clock position to block the other branch of the dorsal nerve using the remaining 0.5 ml of the anaesthetic agent in the syringe. Wait for 3-5 minutes after all the local anaesthetic has been injected before applying the circumcision devise.

9.4.2 Other local anaesthetic agent:

EMLA (Eutectic mixture of local anaesthesia) is also an acceptable neonatal local anaesthetic agent. A neonatal dose of 1 gram of EMLA is applied on the penis for approximately 60 minutes prior to the procedure and covered with an occlusive dressing. It should be wiped off prior to skin preparation.

EMLA is associated with a risk of methemoglobinemia when used in excessive amounts or in conjunction with other drugs that can induce methemoglobinemia such as sulfa containing drugs. A small amount of prepuce swelling can be expected with the use of EMLA.

9.5 Surgical Preparation and Draping
Keep neonates and infants calm during the procedure so as to facilitate a good surgical outcome. Neonates and infants can be kept from moving by swaddling or using a restraining board or an assistant to hold the infant. The parent, guardian or caregiver should be permitted to accompany neonate/infant during the procedure.

While the local anaesthetic is taking effect, the skin of the penis and lower abdomen should be cleaned with antiseptic solution such as chlorhexidine or povidone iodine. A drape is not essential to perform neonatal circumcision but if available, a sterile single drape with a central hole for the penis may be used.

9.5.1 Performing the surgical procedure:

There are three recognized devices for NMC namely: 1) Mogen clamp; 2) Plastibell; and 3) Gomco clamp.

Each device has specific advantages and disadvantages. Experience from Swaziland and other countries have shown that the preferred device is the Mogen Clamp. For that reason, only the Mogen Clamp is described in this protocol.

9.5.2 Mogen Clamp

The Mogen clamp fits all penises. It is reusable but requires proper cleaning and sterilization between procedures.

9.5.1 Retracting the Foreskin and Dealing with Adhesions

After the local anaesthetic agent has taken effect and the skin preparations are complete, the following steps should be followed:

1. Stretch the opening of the foreskin with an artery forceps, being careful not to insert the forceps tip into the urethral meatus. As the foreskin is retracted, separate the fine adhesions commonly found between the foreskin and the glans using a closed pair of artery forceps. Moisten the glans with an antiseptic solution such as chlorhexidine, povidone iodine, or a sterile gel while separating adhesions. All adhesions from around the glans should be separated until the foreskin is freed from the glans and the corona is exposed. This step will prevent the glans from getting accidentally pulled into the Mogen Clamp.

2. Apply gentle traction on the foreskin and introduce it into the slit of the device, with the concavity facing the glans. If there is any doubt whether the glans might have been pulled into the slit, remove the clamp, inspect the glans for any injury, and reapply the clamp.

3. Close the device to crush the foreskin and leave the clamp closed for 3-5 minutes to reduce the risk of bleeding.
4. Cut off the foreskin on the outer side of the clamp with a scalpel.

5. Open the device and remove it.

6. Using gentle pressure from the side, gently squeeze out the glans buried under the crushed foreskin. This is an important step to prevent adhesions between the edges of the foreskin across the glans. Do not apply too much pressure as the skin edges will separate. If this occurs, place 4/0 or 5/0 absorbable simple sutures to approximate the edges.

6) Apply sterile Vaseline impregnated gauze loosely around the penis.

9.6 Postoperative Information and Education

Bleeding is rare with the Mogen clamp however before sending the baby home, he should be observed for 30 minutes. The parents should be told that it is not necessary to reapply the dressing once it falls off, and that the infant can be looked after in the regular way, including normal washing and use of nappies. Healing is usually complete after one week, and additional analgesia should not be necessary during that time. Parents do not need to bring the baby back to the clinic unless advised or if any of the following occurs:

- The baby appears to be distressed or in pain
- The baby has developed fever
- There is unusual swelling or bleeding
- The baby has difficulties with passing urine

10. INFECTION PREVENTION

For MC for HIV prevention programs, a major infection prevention concern is the potential transmission of bloodborne pathogens, such as HIV and hepatitis B virus, to healthcare workers and clients. This can occur as a result of exposure to blood, blood products, or body fluids or an infected person, either by direct contact with an open wound, blood or body fluids, or through an accidental needle stick injury. Such exposure may take place during patient care, clinical or surgical procedures, processing of soiled instruments, or cleaning and waste disposal. Needle stick injuries carry a high risk of infection; the actual level of risk depends upon the type of needle, the depth of the injury, the amount of blood or blood product on the needle, and the viral load of the blood.

There are a number of standard precautions and practices to ensure good infection prevention.

10.1 Hand Hygiene

Clean water (chlorinated water or water boiled for 10 minutes and filtered for particulates if tap water is contaminated) should be available for hand hygiene in all settings providing MC services.
WHO distinguishes between handwashing and handrubbing. Generally, handwashing is performed with soap and water for 40-60 seconds whenever hands are visibly soiled. Handrubbing is performed with an alcohol-based solution for 20-30 seconds to achieve hand antisepsis, particularly before and after direct patient contact.

Hands should be washed or treated with a handrub:

- Before starting clinic duties
- Whenever hands are visibly soiled (handwash)
- Before and after direct contact with patients (handrub)
- After removing gloves
- Before handling an invasive device for patient care, whether or not gloves are used
- After contact with blood, blood products, body fluids or excretions, mucous membranes, non-intact skin, or wound dressings
- After using the toilet

Because handrubs do not remove soil or organic matter, visibly soiled hands should be washed with soap and water. If blood or body fluids are splashed onto non-intact skin, or if there is a percutaneous injury, do not use alcohol-based solutions or strong disinfectants; instead, wash the affected area with soap and water and seek advice on the need for post-exposure prophylaxis (See Section 10.6).

In most clinical situations, an alcohol-based handrub should be used for routine hand antisepsis. Commercial handrubs, liquid soaps, and skin care products are sold in disposable containers and may be used provided they meet recognized international standards (such as those of the American Society for Testing and Materials (ASTM) or the European Committee for Standardization (CEN) and are well accepted by healthcare workers. If commercial products are not available, an alcohol-based handrub may be produced locally.

Note: handwashing and handrubbing are different from surgical hand scrubbing performed by the surgical team members prior to surgery (described in Section 7.2.2.2).

### 10.2 Personal Protective Equipment

Personal protective equipment (PPE) includes gloves, masks, protective eyewear (face shield or goggles), cap or hair cover, apron, gown, and footwear. PPE should be used by healthcare workers who provide direct care to patients, support staff, including medical aides, cleaners, and laundry staff, and laboratory staff. Single-use PPE should be disposed of according to healthcare facility protocol. Reusable PPE should be decontaminated according to the manufacturer’s instructions or laundered according to healthcare facility protocol.

Gloves do not replace the need for hand hygiene and should not be used for the care of more than one patient. Surgical masks, protective eyewear, and footwear (boots or shoe covers) should be used by surgical theatre staff. Caps are recommended but not essential. Aprons provide a waterproof barrier and staff should wear aprons when cleaning
instruments. A surgeon’s gown is recommended for clinicians performing surgery, though some surgeons may prefer just to use a clean or disposable apron.

### 10.3 Safe Handling of Hypodermic Needles/Syringes and Sharps

All clinic staff should be trained in the safe handling of sharp instruments.

Because hollow-bore hypodermic needles are the most common cause of injury to all types of staff working in clinical settings, the following measures should be followed:

- Disposable needles and syringes must only be used once
- Do not disassemble the needle and syringe after use
- Do not bend or break needles before disposal
- Dispose of the needles and syringe together in a puncture-resistant container
- Do not recap the needle before disposing of the needle and syringe. If a needle must be recapped, use the “one‐handed” recapping method.

Clearly labelled, puncture- and tamper-proof sharps safety boxes or containers are a key component in minimizing injuries from sharps. Generally, the following tips for sharps containers are important:

- Sharps containers should be placed as closely as possible and practical to their point of use. Avoid placing them in areas of high traffic where people might accidentally put their hand into them.
- Attach to a wall or other surface at a convenient height, if possible
- Clearly mark as a sharps container
- Mark the fill line at three‐quarters full and do not shake to contents to make more room
- Never attempt to empty a sharps container

### 10.4 Processing of Instruments, Environmental Cleaning, and Management of Spills

#### 10.4.1 Processing of Instruments

Effective and safe processing of instruments includes disinfection, cleaning to remove all organic matter and chemicals, and high‐level disinfection or sterilization. This processing should take place for instruments and equipment that will be used within the body, in sterile tissue, cavities, or the blood stream.

#### 10.4.1.1 Disinfection

Disinfectant solutions must always be available for cleaning working surfaces, equipment that cannot be autoclaved and non‐disposable items, and for spills involving blood/body fluids, pathological specimens, or other known infectious materials.

Non‐disposable surgical instrument should be soaked in chemical disinfectant for 30 minutes after their use. The most widely available disinfectant is sodium hypochloride (bleach or Jik).
10.4.1.2 Cleaning

Following disinfection, reusable instruments should be cleaned with detergent and water before being high-level disinfected or sterilized. Thick household or utility gloves, protective eyewear, mask, and plastic apron should be worn during cleaning. Avoid using abrasive cleaners or steel wool, and instead use liquid soap and a soft brush to scrub instruments under the surface of the water, being careful to avoid splashing. Pay particular attention to instrument teeth, joints, and screws. Rinse with clean water and then air dry or dry with a towel.

10.4.1.3 High-level Disinfection

High-level disinfection is the only acceptable alternative to sterilization for heat-sensitive instruments or instruments that cannot otherwise be sterilized. Glutaral (glutaraldehyde) is generally the most appropriate chemical agent for this purpose, though different grades of high-level disinfectants are available for different purposes. Follow the manufacturer’s handling instructions.

10.4.1.4 Sterilization

Sterilization can be achieved through high-pressure steam (autoclave), dry heat (oven), chemicals (ethylene oxide or formaldehyde), or radiation.

All viruses, including HIV, are inactivated by autoclaving for 20 minutes at 121-132 C or 30 minutes if instruments are wrapped as packs. Sterilized instruments need to be properly stored to prevent recontamination.

10.4.2 Environmental Cleaning

Patient areas should be cleaned by wet mopping with hot water (80 C) and a neutral detergent solution improves cleaning quality. All horizontal surfaces and toilets should be cleaned daily. The operating table and instrument trolley should be cleaned between cases with detergent and water.

10.4.3 Management of Spills

Any area that is visibly contaminated with blood or body fluids should be cleaned immediately with detergent and water. After cleaning, disinfect the area with 0.5% sodium hypochlorite solution (bleach or Jik).

10.5 Safe Disposal of Infectious Waste Materials

Safe management of infectious waste is important to protect people from accidental injury and spread of infection.

The following recommendations for safe handling and disposal of infectious waste should be followed:
• Place waste in plastic or galvanized metal containers with tightly fitting colour-coded lids to differentiate infectious and non-infectious waste.
• Place all disposable sharps in designated puncture-resistant containers (described above in Section 10.3)
• Place waste containers as close as possible and practical to their point of use
• Equipment used to hold and transport wastes should not be used for other purposes
• Regularly wash all waste containers with a disinfectant solution then wash with soap, rinse with water, and allow to air-dry.
• When possible, use separate containers for waste that will be treated or that will be disposed of in a particular manner.

Waste containers may be incinerated, encapsulated, and/or buried. The most hygienic and environmentally safe method should be chosen. Attention should be paid to the type of medical waste needing disposal in order to minimize human and environmental risks. New and systematic ways of disposal should be explored including separating and autoclaving solid medical waste before releasing it into the standard solid-waste stream.

10.6 Post-exposure Prophylaxis

Measures should be put in place to prevent health worker exposure to infectious substances. In the event that an accidental exposure occurs, a health worker shall abide by the procedures for post exposure prophylaxis (PEP) as stipulated in the National PEP Guidelines. Facilities providing MC services should have the PEP protocol clearly posted and ensure that the document is easily available to staff. The health facility providing MC should have clear referral connections to a PEP referral centre.