ICRC NURSING GUIDELINES
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INTRODUCTION

The International Committee of the Red Cross (ICRC) Nursing Guidelines are designed to provide the direction and guidance necessary to ensure that all hospital staff members delivering nursing care in ICRC-supported hospital projects meet professional standards for high-quality, evidence-based nursing care.

These guidelines are based on the latest research and current best practice in nursing care. Much of the information is based on universally accepted guidelines established by the World Health Organization and other recognized health institutions. Owing to a lack of research data on nursing care in low-resource and conflict settings, the ICRC Nursing Guidelines are also based on the long experience of ICRC hospital and health specialists, both in the field and at headquarters, in Geneva.

The ICRC has nurses around the world. In order to ensure consistency of care and reduce local variations in nursing practice, it is imperative that these guidelines be accepted as standards and followed without fail.

The ICRC often works with limited resources and in unstable or potentially violent circumstances, and we must adapt our work and expectations accordingly while striving to maintain the highest standards of patient care.

The guidelines predominantly cover surgical nursing but also briefly address other patient-care needs that we routinely encounter in ICRC-supported hospital projects. These include caring for patients with communicable and non-communicable diseases, paediatric care, obstetric care, mental-health care, and caring for victims of sexual violence and victims of chemical, biological, radiological or nuclear contamination. All guidelines include links to resources for more in-depth information and guidance.

Every ICRC-supported hospital project is different, and patients may have varying needs; however, the ICRC Nursing Guidelines are designed for use in all projects, keeping variations to a minimum and ensuring a standardized delivery of high-quality patient care across the board. This standardized approach has proven to be the most effective means of ensuring that all staff members, resident and mobile, can confidently deliver high-quality patient care.

To make the guidelines easy to use in a hospital setting, they are available both online and as a PDF. The additional resources can also be printed out if necessary.

Please inform someone up the ICRC nursing hierarchy if you feel there is an omission or error in the guidelines.

Please also remember that whoever uses these guidelines is ultimately responsible for ensuring that the care they deliver ensures the safety of both patients and staff and conforms to international standards.

The guidelines will be reviewed within the next five years.
ICRC NURSING GUIDELINE 1

STANDARD PRECAUTIONS

OVERVIEW

Standard precautions are a set of practices designed to prevent the transmission of pathogens between patients and staff, thus preventing the spread of infection.

Standard precautions should be followed:
• by all health-care workers (doctors, nurses, physiotherapists, cleaners, etc.)
• in all health-care facilities
• by visitors and caretakers
• for every patient, regardless of their diagnosis or presumed infectious status.

Standard precautions protect staff and patients. They must be followed in the presence of body fluids, including around blood, secretions, drainage, urine, faeces, vomit, mucus membranes and broken skin.

There are eight categories of standard precautions:
• hand hygiene
• use of personal protective equipment
• handling and management of sharps
• respiratory hygiene/cough etiquette
• handling and management of linen
• decontamination of patient-care items
• environmental cleaning
• waste management.

OBJECTIVE

To reduce the spread of infections between patients and staff. This will decrease the number of infections, decrease the length of patients’ stays, decrease mortality, decrease costs and prevent staff illness.

HAND HYGIENE

Hand hygiene includes handwashing and using alcohol-based hand gel. In addition, nails must be kept short, nail polish is prohibited, and no jewellery – including watches – may be worn below the elbow.

Handwashing
Many pathogens are spread by lack of handwashing. Washing your hands correctly removes those pathogens.

Wash your hands on arriving at work, after using the bathroom, when moving from patient to patient and when your hands are dirty or visibly soiled with blood or body fluids.

Hands must be washed with soapy water for 40 to 60 seconds. See the World Health Organization (WHO) poster “How to handwash” in the links section, below.
Using hand gel
Using alcohol-based hand gel destroys pathogens on the hands. It is fast and does not require water. Hand gel can be used when your hands are not visibly contaminated and in between contact with patients. It must be done for 20 to 30 seconds. See the WHO poster “How to handrub” in the links section, below.

PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment (PPE) is any equipment worn to minimize your exposure to hazards in the workplace that can cause serious injuries or illnesses. The type of PPE you should wear depends on the risks. PPE includes gloves, masks, goggles and gowns.

Gloves
Wear gloves:
• when touching patients or when there is risk of contact with body fluids, blood or non-intact skin
• when handling dressings or other items used on patients, laboratory tubes, or soiled linen or equipment
• when you have an open wound or other skin condition
• in between patients or when changing procedures.

Gloves should be removed as soon as a procedure is complete. Perform hand hygiene after glove removal.

You must still wash your hands even if you wear gloves. 1 pair of gloves = 1 procedure = 1 patient

Types of gloves:
• Non-sterile gloves should be used for most procedures. They are single-use only.
• Sterile gloves should be used for surgical procedures or invasive procedures. They are single-use only.
• Protective gloves should be used for cleaning, handling waste, etc. You may reuse your own protective gloves but no one else’s.

Masks
Your choice of mask will depend on the circumstances:
• Surgical masks are worn by contagious patients or health-care workers. They prevent the wearer from spreading germs to those in the surrounding environment. They should always be worn by the surgical team in an operating theatre during surgery. They do not protect the wearer from airborne contaminants.
• N95 respirators cover the nose, mouth and chin. They protect the wearer from inhaling droplet-borne pathogens, e.g. pulmonary tuberculosis or severe acute respiratory syndrome. To be effective, the respirator must fit your face properly and have a tight seal.

Goggles
Goggles protect the mucous membrane of the eyes during activities where there may be a splash of body fluid. Eye visors and face shields protect the nose and mouth as well as the eyes.

NB If blood is splashed into the eyes or mucus membranes, wash the area with soapy water or irrigate the eye with sterile saline or water. An incident form must be filled out (see “Links”, below).

Gowns
• Single-use plastic aprons protect your clothing and skin during activities where there may be a splash of body fluids, e.g. while dressing a wound or emptying a drain.
• Long-sleeved gowns should be worn during surgical procedures or if a patient is in isolation or immunocompromised.
HANDLING AND MANAGEMENT OF SHARPS

In order to prevent needle-stick injuries, all staff members must take care when handling needles, scalpels or any other sharp instrument, when cleaning instruments and when disposing of sharps. The following rules must be followed at all times.

Rules on sharps:
• Never recap needles.
• Never bend needles.
• Do not disconnect needles from syringes by hand.
• Dispose of sharps immediately after use in an appropriate sharps container.
• Ensure the sharps container is nearby when handling sharps.
• Ensure the sharps container is not overfilled and, once full, is sealed and disposed of correctly.
• Ensure sharps are handled in well-lit areas.
• If a needle-stick injury is sustained, ensure the ICRC guidelines on exposure to HIV and hepatitis B and C are followed and the injury is reported to the supervisor and staff health delegate. An incident form must be filled out (see “Links”, below).

RESPIRATORY HYGIENE/COUGH ETIQUETTE

Rules on respiratory hygiene and cough etiquette:
• Anyone with respiratory symptoms must cover their nose and mouth when coughing or sneezing with a tissue or mask. Dispose of the tissue/mask after use and perform hand hygiene.
• If a patient is presumed to have an infectious cough, they must wear a surgical mask.
• Any staff member with a respiratory illness must wear a surgical mask.
• Staff and visitors must wear respirators around patients with active tuberculosis (TB) or multi-drug resistant TB.
• Spitting in the hospital is strictly prohibited.
• If a patient has symptoms of acute febrile respiratory illness, they should be kept at least one metre away from other patients.
• Signs should be posted at the hospital and ward entrance reminding people to practice good cough etiquette.

HANDLING AND MANAGEMENT OF LINEN

Linen includes work uniforms, surgical linen, bed linen and patient garments. Linen should be handled, transported and processed appropriately in order to reduce risk of transmitting pathogens to staff and patients.

Rules on linen:
• Clean linen must be handled with clean hands.
• Linen cupboards must be kept clean, tidy and dust-free. Closed cabinets are preferable.
• Mattresses must be cleaned with the appropriate disinfectant when soiled and after a patient is discharged. All mattress covers must be fully washable and intact.
• Bed linen must be changed at least twice a week and when soiled or dirty.
• Dirty linen must be handled only when wearing gloves and must be put in the correct linen bin.
• Dirty linen must not be placed on the floor or held against the body.
• Patients must not share linen.

1 The guidelines may be found on www.tropimed.com (username: gva_br_medical@icrc.org/password: safemission) under “My Documents” > “Corporate Documents” > “EXPOSURE TO HIV, HEPATITIS B AND C VIRUSES”.
• If dirty linen is not taken directly to the laundry, it must be stored in a labelled container in a clean, well-ventilated room.

• Perform hand hygiene after handling linen.

**DECONTAMINATION OF PATIENT-CARE ITEMS**

All medical equipment and devices used for patients must be decontaminated appropriately. Items must be cleaned, disinfected or sterilized depending on how they are used and the infection risk they pose, as reflected in their Spaulding classification (see table below).

Types of decontamination:
- **Cleaning** entails removing foreign material using water and detergent, e.g. washing cooking utensils with soapy water. Does not destroy pathogens.
- **Low-level disinfection** entails immersing equipment in or wiping equipment/surfaces down with a disinfectant once. Eliminates most pathogens but not spores, viruses or some fungi.
- **High-level disinfection** entails immersing equipment in or wiping equipment/surfaces down with a disinfectant twice. Eliminates all pathogens except spores.
- **Sterilization** entails using an autoclave. Eliminates all pathogens, including spores.

<table>
<thead>
<tr>
<th><strong>SPAULDING CLASSIFICATION</strong></th>
<th><strong>PATIENT CONTACT</strong></th>
<th><strong>DECONTAMINATION REQUIRED</strong></th>
<th><strong>EXAMPLE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-critical items</td>
<td>Equipment/device only comes into contact with intact skin or does not touch patient</td>
<td>Low-level disinfection</td>
<td>Dressing trolley, non-contact infrared thermometer, blood pressure cuff, pulse oximeter</td>
</tr>
<tr>
<td>Semi-critical items</td>
<td>Equipment/device touches mucus membranes or non-intact skin</td>
<td>High-level disinfection or sterilization</td>
<td>Respiratory therapy equipment, anaesthesia mask</td>
</tr>
<tr>
<td>Critical items</td>
<td>Equipment/device that penetrates soft tissue, bone or the vascular system, or through which blood flows</td>
<td>Sterilization of surgical instruments</td>
<td>Dressing set, surgical instruments</td>
</tr>
</tbody>
</table>

**ENVIRONMENTAL CLEANING**

The entire hospital environment should be kept clean and tidy. Daily cleaning should occur in all clinical areas, and a deep clean should occur weekly. All surfaces must be wiped down and disinfected as per hospital policy. Each area should have a cleaning schedule, including the ward, recovery room and operating theatre.

Rules for environmental cleaning:
- All spills must be cleaned up immediately.
- No rubbish should be left on the floor.
- No food waste should be left on the floor or on surfaces.
- No catheter or drainage bags should be left on the floor.
- All urinals and bed pans must be stored clean and dry in an appropriate area, such as a sluice.
WASTE MANAGEMENT

It is the responsibility of all staff members to ensure that an adequate number of waste bins is available and that all waste is disposed of correctly.

Waste type and management:

- **Clinical waste** is waste that is contaminated with body fluids (including blood), human tissues or lab waste, such as wound dressings, infusion sets, catheter bags and any material soaked in body fluids. Clinical waste should be disposed of in the clinical-waste rubbish bag. (The rubbish bag may be yellow, orange or red, depending on supply.)
- **Non-clinical waste** is waste that is not contaminated, such as food, paper and boxes. Non-clinical waste can be put in the normal waste bin.

LINKS

https://collab.ext.icrc.org/sites/TS_ASSIST/WIKIHealthUnit/Pages/Hygiene Standards.aspx

Incident form

WHO “How to handrub” poster
https://www.who.int/gpsc/5may/How_To_HandRub_Poster.pdf

WHO “How to handwash” poster
https://www.who.int/gpsc/5may/How_To_HandWash_Poster.pdf

WHO “Your 5 moments for hand hygiene” poster
https://www.who.int/gpsc/5may/Your_5_Moments_For_Hand_Hygiene_Poster.pdf

REFERENCES


GENERAL WOUND CARE

OVERVIEW

A wound is any damage to or break in the surface of the skin caused by injury to the tissue. Wounds can be either chronic or acute.

Chronic wounds are wounds that are slow to heal, such as a leg ulcer.

Acute wounds are wounds that go through the normal healing process, such as a laceration. They are usually caused by trauma or surgery.

Wound healing can occur by primary, secondary or tertiary intention.

<table>
<thead>
<tr>
<th>HEALING TYPE</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary intention</td>
<td>Wound edges are brought together neatly with skin adhesive or sutures/staples. Healing usually occurs within days.</td>
</tr>
<tr>
<td>Secondary intention</td>
<td>Wound is left open – occurs when wound edges cannot be joined together. Exudate may be heavy. Healing can take a long time. Debridement may be needed.</td>
</tr>
<tr>
<td>Tertiary intention</td>
<td>Wound is left open and closed later, ideally within a few days (also known as “delayed primary closure”).</td>
</tr>
</tbody>
</table>

There are four stages of healing:
- haemostasis (occurs within minutes)
- inflammatory phase (occurs within one to five days)
- proliferation phase (occurs within three to 24 days)
- maturation phase (occurs from 21 days onwards).

OBJECTIVE

To ensure the nurse can confidently provide optimum wound care. Optimum wound care:
- promotes healing
- protects wounds from further contamination, injury and infection
- promotes haemostasis.

ASSESSMENT

When looking at a wound, you should assess the following:
- depth of wound, i.e. superficial or deep
- type of wound, i.e. surgical, traumatic or chronic
- location of wound
• involvement of other vital organs, nerves or blood vessels
• signs of infection, e.g. redness, swelling, heat, odour or purulent exudate.

**Factors that affect wound healing**
The patient’s condition
• Weak immune status (HIV-positive or otherwise immunocompromised)
• Advanced age
• Poor nutritional status
• Anaemia
• Medications (non-steroidal anti-inflammatory drugs, steroids, anti-coagulants)
• Pain
• Stress
• Other disease

The wound’s condition
• Clean or not (see table below)
• Excessive exudate
• Slough and necrotic tissue
• Site/location of the wound
• Blood supply to the area
• Wound temperature (should be kept constant, not too cold or too hot)

**Types of wounds**
Treatment of the wound (including choice of dressing) will depend on the wound type and appearance.

<table>
<thead>
<tr>
<th>WOUND TYPE</th>
<th>APPEARANCE</th>
<th>TREATMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean</td>
<td>Closed or open without dirt or exudate</td>
<td>Clean with saline. Apply gauze dressing.</td>
</tr>
<tr>
<td>Necrotic</td>
<td>Black or brown, eschar</td>
<td>Inform doctor – may need debridement. Follow doctor’s orders.</td>
</tr>
<tr>
<td>Sloughy</td>
<td>Yellow or green pus, +/- infection</td>
<td>Gently remove slough if possible. Inform doctor. Apply sugar dressing; for pseudomonas infections apply vinegar dressing.</td>
</tr>
<tr>
<td>Granulating</td>
<td>Moist, red or dark pink, soft</td>
<td>Apply paraffin gauze; for cavity wounds apply sugar dressing.</td>
</tr>
<tr>
<td>Epithelializing</td>
<td>Pinkish colour, reducing in size</td>
<td>Apply gauze dressing.</td>
</tr>
<tr>
<td>Cavity</td>
<td>Deep wound</td>
<td>Apply sugar dressing.</td>
</tr>
<tr>
<td>Infected</td>
<td>Green pus, foul smell, pain, increase in exudate, inflamed</td>
<td>Inform doctor. Irrigate with saline; may need antibiotics. Apply vinegar dressing for pseudomonas infections; otherwise apply iodine dressing.</td>
</tr>
</tbody>
</table>

**MANAGEMENT**

**Dressing procedure**
Some dressings may need to be applied with sterile gloves; all others should be applied with non-sterile gloves while using aseptic technique.²

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² Aseptic technique is defined as “the practice of carrying out a procedure in such a way that you minimize the risk of introducing contamination into a vulnerable area or contaminating an invasive device” (The Royal Marsden of Clinical Nursing Procedures, p. 76). Non-touch technique is one aseptic technique. For changing dressings, using non-touch technique means carrying out the dressing change without directly touching the wound, which might come in contact with the wound.
### PRE-PROCEDURE

1. Explain the procedure to the patient before beginning.
2. Give analgesia, if required, 30 minutes prior to dressing change.
3. Wash your hands with soap and water and put on an apron.
4. Clean the dressing trolley with ICRC-approved disinfectant and set up the trolley.
5. Put all dressing material on the bottom shelf of trolley. Check expiry dates to ensure nothing has expired.
6. Ensure the patient is comfortable and the wound area is exposed.
7. Move the dressing trolley to the bed. Ensure the patient has privacy by using a screen, if available, or other means.

### PROCEDURE

8. Perform hand hygiene and put on gloves.
9. Open dressing pack on top of the trolley, opening the sterile field using the outer corners only.
10. Empty the dressing materials onto the sterile field, using non-touch technique.
11. Ensure the sterile field is set up with dressing solution. Pour saline into a pot or kidney dish.
12. Put a paper towel or pad under the wounded body part to protect the bed.
13. Remove the patient’s current dressing. Inspect it for any exudate and then dispose of it in the clinical-waste bin.
15. Put on new gloves.
16. Irrigate wound gently with 0.9% saline if needed, without touching the wound.
17. Use non-touch technique with sterile dressing forceps to pick up sterile gauze and fold it into a compress.
18. Clean the wound with saline-soaked gauze to remove any residue from the wound. Work from clean to dirty areas, and use a clean swab for each wipe (1 swab = 1 wipe).
19. Dab dry with a sterile compress.
20. For a linear wound or incision: Start over the wound and move outwards (1 swab = 1 wipe).
21. For an open wound: Wipe in a circle, starting over the wound and moving outwards (1 swab = 1 wipe).
22. Apply the prescribed dressing.
23. Use dressing forceps to apply the dressing material, covering the wound completely.
24. If a large amount of exudate is present, cover the primary dressing with fluffy gauze. If there is only minimal exudate, apply the primary gauze dressing only.
25. Cover the gauze with a crepe bandage and secure the bandage with tape.
26. Write the date of the next dressing change on a piece of tape and put it on the bandage.

### POST-PROCEDURE

27. Remove the trolley from the patient’s bedside and discard all waste into the clinical-waste bin.
28. Remove gloves and apply an alcohol-based hand gel.
29. Put away unused, clean equipment and materials.
30. Ensure that the dressing instruments set is sent off for decontamination or sterilization, as appropriate.
31. Clean the trolley with ICRC-approved disinfectant.
32. Wash your hands with soap and water.
33. Document the condition of the wound in the patient notes or, if available, on a wound-assessment chart.
34. Notify the head nurse or surgeon of signs of deterioration in wound healing, an increase in pain, etc.
LINKS

For vinegar dressings see Guideline 4.
For sugar dressings see Guideline 3.
For pin-site care see Guideline 5.
For burn care see Guideline 9.
For pressure-sore care see Guideline 8.

REFERENCES


ICRC NURSING GUIDELINE 3

SUGAR DRESSINGS

OVERVIEW

Sugar is a cheap, readily available and accessible dressing material that has been proven to act as an anti-microbial agent. Several clinical studies have found sugar to:

- enable desloughing
- assist in the formation of granulation tissue and early epithelialization
- inhibit bacterial growth
- accelerate wound healing.

Sugar dressings are most effective on sloughy and infected wounds.

OBJECTIVE

To ensure the nurse can confidently apply a sugar dressing in order to promote wound healing.

MANAGEMENT

Applying a sugar dressing

Use a sugar dressing:

- for open wounds with a cavity
- on prescription by the surgeon.

<table>
<thead>
<tr>
<th>DRESSING PROCEDURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Prepare the patient, set up the dressing trolley, perform hand hygiene and put on gloves as per steps 1 to 12 of the dressing procedure in Guideline 2, on wound care.</td>
</tr>
<tr>
<td>2. Remove the old dressing.</td>
</tr>
<tr>
<td>3. Remove gloves, perform hand hygiene and put on new gloves.</td>
</tr>
<tr>
<td>4. Clean the wound thoroughly with saline to remove all sugar from the previous dressing, using non-touch technique.</td>
</tr>
<tr>
<td>5. Irrigate the wound thoroughly with saline (using an irrigation syringe) until it is clean.</td>
</tr>
<tr>
<td>6. Dry the wound with sterile compresses.</td>
</tr>
<tr>
<td>7. Clean the surrounding skin with saline.</td>
</tr>
<tr>
<td>8. Fill the cavity with sugar, using a sterile gauze packet as a funnel to pour the sugar into the wound. Distribute the sugar evenly.</td>
</tr>
<tr>
<td>9. Cover the wound with fluffy, sterile gauze and secure the gauze with a dry dressing and crepe bandage as per Guideline 2.</td>
</tr>
<tr>
<td>10. Clear and clean the trolley area as per Guideline 2.</td>
</tr>
<tr>
<td>11. Remove your gloves and perform hand hygiene.</td>
</tr>
<tr>
<td>12. Document the dressing change and the condition of the wound in the patient notes.</td>
</tr>
</tbody>
</table>
**Frequency**
Sugar dressings should be applied daily, unless otherwise stated by the surgeon.

**Side effects**
Sugar dressings can cause:
- itching of the surrounding skin
- excessive exudate.

**REFERENCES**


ICRC NURSING GUIDELINE 4

VINEGAR DRESSINGS

OVERVIEW

*Pseudomonas aeruginosa* (henceforth “pseudomonas”) is a gram-negative bacterium that is resistant to many antibiotics. When a wound is infected with pseudomonas, it is difficult to treat. Acetic acid (in the form of diluted vinegar) has been proven to kill and inhibit the growth of pseudomonas by increasing the acidity in the wound.

OBJECTIVE

To ensure the nurse can confidently apply a dressing using vinegar in order to remove pseudomonas from infected wounds and allow for effective wound healing.

ASSESSMENT

The presence of pseudomonas in a wound is confirmed by:
- a positive wound culture (if available)
- clinical signs, i.e. the presence of blue or greenish exudate and a strong, foul smell.

MANAGEMENT

Dilution

Vinegar dressings can be made by diluting white vinegar with sterile water or saline, to a concentration of 1%. Usually vinegar has a strength of approximately 5% acetic acid.

*To obtain a 1% solution*

Mix 20 ml vinegar (5% acetic acid) with 80 ml sterile water or saline.

*To obtain 0.5% solution (when 1% is too painful)*

Mix 10 ml vinegar (5% acetic acid) with 90 ml sterile water or saline.

PROCEDURE

1. Prepare the patient, set up the dressing trolley, perform hand hygiene and put on gloves as per steps 1 to 12 of the dressing procedure in Guideline 2, on wound care.
2. Prepare the vinegar solution in a sterile dish.
3. Remove the current dressing.
4. Perform hand hygiene and put on clean gloves.
5. Clean the wound with saline using aseptic technique, from clean to dirty areas of the wound.
7. Place saturated gauze on the wound. Ensure the compress is wet but not dripping.
8. Cover with dry, sterile gauze and leave on the wound for 15 minutes.
## PROCEDURE

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9.</td>
<td>Remove the vinegar compress.</td>
</tr>
<tr>
<td>10.</td>
<td>Rinse wound with saline and dry with a sterile compress.</td>
</tr>
<tr>
<td>11.</td>
<td>Dress the wound with dry, fluffy, sterile gauze and cover with a crepe bandage as per Guideline 2.</td>
</tr>
<tr>
<td>12.</td>
<td>Clear and clean the trolley as per Guideline 2.</td>
</tr>
<tr>
<td>13.</td>
<td>Perform hand hygiene.</td>
</tr>
<tr>
<td>14.</td>
<td>Document the dressing change and the condition of the wound in the patient notes.</td>
</tr>
</tbody>
</table>

### Frequency

- The dressing procedure should be carried out one to two times per day for seven to ten days.
- Vinegar dressings should not be continued past ten days.
- After ten days, assess the wound with the surgeon.

### Side effects

Vinegar dressings can cause:

- pain
- a burning sensation
- localized skin reactions.

## SPECIAL CONSIDERATIONS

Do not use acetic vinegar with other antiseptic solutions.

## REFERENCES


ICRC NURSING GUIDELINE 5
CARING FOR A PATIENT WITH AN EXTERNAL FIXATOR

OVERVIEW

- External fixation ("ex-fix") is a procedure for setting and stabilizing broken bones whereby sterile pins are inserted into a fractured bone through surgical incisions in the skin. The pins are held in place by an external clamp or frame.
- The pins are used to assist with wound management in an open fracture, when there is considerable soft-tissue injury and/or bone loss.
- Ex-fix is the fixation method of choice for all fractures associated with weapon wounds, which should always be considered infected. When possible, it is preferred over other methods because it aids with early patient mobilization.
- When other methods of fracture alignment have failed or are unavailable, ex-fix can be used to keep the fracture aligned and in position in order to promote healing.
- Multiple pins are needed to stabilize a fracture, and the pin sites need to be well managed, observed frequently and dressed regularly.

OBJECTIVE

To ensure the nurse is capable of providing high-quality care to promote fracture and wound healing and prevent infection of the bone and tissue around pins.

MANAGEMENT

- The patient will have an external fixator applied during surgery; the surgeon will apply a dry dressing to all pin sites and the wound.
- For independent pin sites: the dressing at the pin sites should be changed three days after surgery.
- For pin sites close to the edge of the wound: the dressing at the pin sites should be changed five days after surgery along with the wound dressing.

PROCEDURE FOR DRESSING PIN SITES

1. Prepare the patient, set up the dressing trolley, perform hand hygiene and put on gloves as per steps 1 to 12 of the dressing procedure in Guideline 2, on wound care.
2. Remove the old dressings from the pin sites.
3. Wash your hands and put on new gloves.
4. Gently move the skin around the pin site with sterile gauze to ensure the skin is free to move and any trapped exudate can move to the surface. This also prevents the skin from closing around the pin.
5. If there is a collection of fluid with crusts, remove the crusts gently with sterile forceps.
6. With new sterile gauze, clean the skin around the pins with saline, using a circular motion and moving from clean to dirty areas. Clean one pin at a time, with one piece of gauze for each pin.
7. Dry each site with sterile gauze.
8. Dress the pin site with dry sterile gauze. Secure the gauze with tape.
PROCEDURE FOR DRESSING PIN SITES

9. Clean up the dressing trolley and dispose of waste as per Guideline 2.


11. Document in the patient notes the change of dressing and the condition of the pin site.

Frequency

- Apply a new dressing every Monday, Wednesday and Friday.
- At least once a week or as required, the ex-fix frame should be cleaned thoroughly with warm soapy water (if available) or saline and then dried.

SPECIAL CONSIDERATIONS

- The patient can shower or wash ten days after surgery; the pin sites must be dressed immediately after they shower/wash.
- In collaboration with the physiotherapist, ensure the patient moves independently as much as possible, using the appropriate mobility devices (e.g. crutches or a wheelchair).
- Involve the physiotherapist to maximize the patient’s limb function.
- Do not dress pin sites with povidone-iodine, gels, ointments or occlusive dressings as these can obscure the colour and nature of the skin and/or prevent drainage from the pin sites.

MANAGING AN INFECTION

First, notify the head nurse or surgeon.

Then assess what stage the infection is at and treat it accordingly.

Infection stages

- **Stage 1:** The pin site and/or surrounding area is red.
- **Stage 2:** The pin site has serous or seropurulent exudate and localized cellulitis (redness, swelling, tender or warm to the touch). A superficial infection.
- **Stage 3:** There is a deep infection, with or without loosening of the pin.
- **Stage 4:** There is a bone infection (osteomyelitis).

Treatment

- **Stage 1:** Dress the pin sites daily – mobilize the skin around the pins, clean with saline and apply a dry dressing.
- **Stage 2:** Treat the infection with an oral antibiotic according to the doctor’s prescription. If swab culture is possible, take a swab and await the results before treating with an antibiotic. Dress the pin sites daily – mobilize the skin around the pins, clean with saline and apply a dry dressing.
- **Stages 3 and 4:** The pin will be removed and the patient will need intravenous antibiotics.

NB Povidone-iodine is no longer used to clean or dress pin sites. (See above.)

LINKS

Health wiki: ICRC physio card
REFERENCES


ICRC NURSING GUIDELINE 6

CARING FOR A PATIENT WITH A VACUUM-ASSISTED CLOSURE DRESSING

OVERVIEW

A vacuum-assisted closure (VAC) dressing works by applying negative pressure to a wound, either continuously or intermittently, in order to promote healing. Also known as negative-pressure wound therapy, or NPWT.

Any surgical team working in an ICRC-supported hospital project that wishes to apply a VAC dressing must have prior approval from the chief surgeon and hospital team in Geneva. This is a technique that requires a high level of nursing skill, the use of ICRC-approved material only and an excellent standard of hygiene. If these conditions are not met, the outcome for patients can be disastrous.

OBJECTIVES

To ensure the nurse is capable of providing high-quality nursing care to a patient with a VAC dressing.

Applying negative pressure to the wound bed using a VAC pump:
• removes excess exudate, promoting a moist healing environment
• reduces swelling in the surrounding tissues
• promotes granulation of tissues
• reduces the number of bacteria in the wound
• increases blood flow to the wound bed.

ASSESSMENT

Indications for the use of a VAC dressing
• Pressure injuries
• Diabetic foot ulcers
• Acute/trauma wounds
• Burns
• Ulcers
• Meshed grafts
• Skin flaps
• Dehisced wounds
• Chronic wounds

Contraindications
• Malignant wounds
• Non-enteric fistulas
• Untreated osteomyelitis
• Exposed blood vessels
• Eschar
Caution (where extra care is required)
- Enteric fistulas
- Active bleeding
- Anticoagulant use
- Haemophilia or sickle cell disease
- Abnormal clotting
- Exposed vital structures, e.g. bone, tendons or organs

MANAGEMENT

Management in surgery
- Surgical debridement will be performed.
- The VAC dressing will be applied in surgery by the surgeon or nurse.
- The first dressing change should take place four to seven days post-surgery.

Nursing care on the ward
- Change the dressing every four to seven days, depending on the wound, the amount of fluid aspirated and the surgeon’s orders.
- Wounds with a large amount of exudate or odour may require more frequent dressing changes.
- Suction pressure is 125 mm Hg unless otherwise specified. The precise suction pressure to be used, and whether it is to be constant or intermittent, will depend on the wound’s characteristics.
- If there is a loss of suction, increase in pain or increase in odour, the pressure may need to be decreased or the dressing changed. Inform the surgeon before taking remedial action.
- If suction is not working or is off for more than two to three hours, inform the surgeon. They will probably request that the VAC system be removed and a simple dressing applied instead.
- Always ensure the tubing is not blocked and the VAC is draining.

Observe the patient for the following:
- excessive pain and tenderness near the wound
- elevated temperature
- tachycardia
- offensive smell from the wound
- excessive wound discharge
- bleeding from the wound.

DRESSING PROCEDURE

Preparation
- Check the patient file and ensure a dressing change is due.
- Give analgesia 20 to 30 minutes prior to the change, if required.
- Explain the procedure to the patient and get their consent.
- Check for allergies – ensure the patient is not allergic to the dressing material.
- Gather all the equipment required and set up the dressing trolley. (The trolley must be cleaned prior to use.)
- Turn off suction 15 minutes prior to the dressing change. Clamp the tubing just before changing the dressing.

Equipment
- Dressing trolley (cleaned)
- Sterile dressing set
- Extra sterile gauze
• Non-sterile and sterile gloves
• Saline for irrigation
• Sterile VAC sponge
• Sterile VAC tubing/Y-connector
• Universal tubing (for VAC bottle)
• ICRC-approved transparent adhesive dressing (e.g. Tegaderm or Ioban)
• Appropriate VAC collection bottle
• Contaminated waste bag

### PRELIMINARY PROCEDURE

<table>
<thead>
<tr>
<th>Step</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Perform hand hygiene.</td>
</tr>
<tr>
<td>2.</td>
<td>Don the required personal protective equipment.</td>
</tr>
<tr>
<td>3.</td>
<td>Ensure the dressing trolley is set up.</td>
</tr>
<tr>
<td>4.</td>
<td>Place a clean, absorbent pad under the affected body part.</td>
</tr>
<tr>
<td>5.</td>
<td>Rub hands with alcohol-based hand gel and put on non-sterile gloves.</td>
</tr>
<tr>
<td>6.</td>
<td>Remove soiled dressing and discard in the clinical-waste bag.</td>
</tr>
<tr>
<td>7.</td>
<td>Ensure all of the VAC sponge is removed.</td>
</tr>
<tr>
<td>8.</td>
<td>Assess the wound for healing, granulation, infection, amount of exudate, peri-wound area, etc. Report any concerns to the surgeon.</td>
</tr>
<tr>
<td>9.</td>
<td>Remove gloves.</td>
</tr>
<tr>
<td>10.</td>
<td>Rub hands with alcohol-based hand gel.</td>
</tr>
<tr>
<td>11.</td>
<td>Open the dressing set and add all the necessary VAC and dressing material.</td>
</tr>
<tr>
<td>12.</td>
<td>Put on sterile gloves and cut the VAC sponge to shape using sterile scissors.</td>
</tr>
<tr>
<td>13.</td>
<td>Clean the wound and peri-wound area with aseptic/non-touch technique as per Guideline 2 (on wound care).</td>
</tr>
<tr>
<td>14.</td>
<td>To dress the wound, follow either A or B below, according to the VAC system.</td>
</tr>
<tr>
<td>15.</td>
<td>After dressing the wound, dispose of all waste and clean the trolley and surrounding area.</td>
</tr>
<tr>
<td>16.</td>
<td>Perform hand hygiene, washing your hands with soap and water.</td>
</tr>
<tr>
<td>17.</td>
<td>Document the process in the patient notes.</td>
</tr>
</tbody>
</table>

### A. PROCEDURE FOR A TRANSPORTABLE, BATTERY-RUN VAC SYSTEM

<table>
<thead>
<tr>
<th>Step</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Fill the wound cavity with the pre-cut sponge but do not pack it tightly: the sponge should extend slightly above the level of the surrounding skin. Once the suction is applied, the sponge should not be on healthy skin.</td>
</tr>
<tr>
<td>2.</td>
<td>Cut the transparent adhesive dressing to size, apply it over the sponge and ensure it is well sealed.</td>
</tr>
<tr>
<td>3.</td>
<td>Remove your gloves and place them in the clinical-waste bag.</td>
</tr>
<tr>
<td>4.</td>
<td>Rub your hands with alcohol-based hand gel.</td>
</tr>
<tr>
<td>5.</td>
<td>Cut a small hole in the adhesive dressing, over the sponge.</td>
</tr>
<tr>
<td>6.</td>
<td>Place the adhesive pad and tubing directly over the cut hole.</td>
</tr>
<tr>
<td>7.</td>
<td>Connect the pad tubing to the bottle tubing and ensure the clamps are open.</td>
</tr>
<tr>
<td>8.</td>
<td>Turn on the vacuum device, set it to the prescribed pressure and confirm that the dressing and sponge shrink down correctly. The sponge should collapse down and become firm. If this does not occur, look for any leaks and cover with more adhesive dressing.</td>
</tr>
</tbody>
</table>
### B. Procedure for a Wall Suction VAC System

1. Fill the wound cavity with the pre-cut sponge but do not pack it tightly: the sponge should extend slightly above the level of the surrounding skin. Once the suction is applied, the sponge should not be on healthy skin.

2. Cut the VAC tubing to size – the hole needs to be in place over the sponge.

3. Cover with another piece of sponge.

4. Cut the transparent adhesive dressing to cover the top sponge. Allow for at least a 3–5 cm border around the sponge.

5. Apply the adhesive dressing over the sponge and ensure it is well sealed.

6. Remove your gloves and place them in the clinical-waste bag.

7. Rub your hands with alcohol-based hand gel.

8. Attach the VAC tubing to the Y-connector.

9. Attach the tubing to the collection bottle and ensure the tube is connected to the wall suction outlet.

10. Turn on the wall suction system and set the pressure to the prescribed level.

11. The sponge should collapse down and become firm. If this does not occur, look for any leaks and cover with more adhesive dressing.

### Documentation

Document the dressing change in the patient notes, including:

- the time and date of the dressing change
- the date for the next dressing change
- a description of wound, peri-wound, size, odour, exudate
- the suction pressure
- the number of sponge pieces in the wound
- pain management pre- and post-dressing change, plus the patient’s pain score
- any changes to the treatment plan.

### References


ICRC NURSING GUIDELINE 7

CARING FOR A PATIENT WITH A SPLIT SKIN GRAFT

OVERVIEW

A split skin graft is a surgical procedure whereby part of the skin (epidermis or dermis) is taken from one area of the body (the donor site) and transplanted to another part of the body to cover a wound (the recipient site).

OBJECTIVE

To ensure the nurse is capable of providing high-quality care to patients with split skin grafts.

INDICATIONS

Split skin grafts are used:
• to cover extensive wounds that cannot be directly closed with sutures
• to cover deep or extensive burns
• to cover wounds that are likely to result in functional restrictions owing to excessive scarring.

ASSESSMENT

The recipient site
In order for the graft to take (i.e. to integrate and heal into the wound) the recipient site needs to:
• be clean and free from slough or other necrotic tissue
• be free of infection
• have a good blood supply
• show signs of granulation.

The donor site
Intact healthy skin can be taken from the thigh, buttock, back, upper arm or scalp (in paediatrics).

MANAGEMENT

Preoperative
• The day before surgery, the donor site should be selected by the surgeon and marked.
• The day before surgery, the surgeon should also check the wound to ensure it is ready for grafting, i.e. it meets the criteria above.
• If the donor site is hairy, hair removal may be required – check with the surgeon.
• The night before surgery, wash the donor site with soap and water, dry it and cover it with a sterile dry dressing, indicating the donor site on a piece of tape secured to the dressing.
Care of graft (recipient site)

• After surgery the graft dressing should be left intact for five days.
• The first dressing change should be done by the surgeon after five days. If the wound is large, the patient should be taken back to the operating theatre.
• The second dressing change should be done after another five days. It can be undertaken by an experienced nurse unless otherwise stated by the surgeon.
• After ten days post-operation, the sutures or staples can be removed as per the surgeon’s request.
• The graft may require further dressing changes, depending on the healing progress. Dress as per the surgeon’s instructions.

PROCEDURE FOR DRESSING A GRAFT

1. Prepare the patient, set up the dressing trolley, perform hand hygiene and put on gloves as per steps 1 to 12 of the dressing procedure in Guideline 2, on wound care. Analgesia must be provided.
2. Remove the old dressing with two pairs of sterile forceps, using one pair to gently support the graft in place and the other pair to gently loosen the dressing. Saline may be required to moisten the dressing if it is sticking to the graft.
3. Remove gloves, perform hand hygiene again and put on new gloves.
4. Clean the surrounding skin gently with saline, using aseptic technique, and dry.
5. Cover the graft with one layer of paraffin gauze (e.g. Jelonet) and apply sterile gauze and a crepe bandage.
6. Dispose of waste in the clinical-waste bag and clean the trolley with ICRC-approved disinfectant.
7. Perform hand hygiene.

Care of donor site

• After surgery the donor site should be left intact for ten days.
• The first dressing change should be done after ten days.
• The second dressing change should be done three to five days later, as per the surgeon’s request.

PROCEDURE FOR DRESSING DONOR SITE

1. Prepare the patient, set up the dressing trolley, perform hand hygiene and put on gloves as per steps 1 to 12 of the dressing procedure in Guideline 2, on wound care. Analgesia must be provided.
2. Remove the old dressing carefully using forceps. Use saline if the dressing is sticking to the wound.
3. Remove gloves, perform hand hygiene again and put on new gloves.
4. If raw areas are present, clean them with saline and pat dry with gauze. Cover them with paraffin gauze (e.g. Jelonet), dry gauze, a compress and a bandage. Use aseptic technique.
5. If no raw areas are present, only apply paraffin gauze, a gauze compress and a bandage, using aseptic technique.
6. Dispose of waste in the clinical-waste bag and clean the trolley with ICRC-approved disinfectant.
7. Perform hand hygiene.

Once the donor site and graft have healed, gently wash both areas daily with soap and water, pat them dry and cover them with a thin layer of Vaseline. Educate the patient or patient’s carer on how to maintain the healing process and good hygiene.

Signs of healing: pink colour, dryness and itching. Ensure the patient does not scratch the wounds.
SPECIAL CONSIDERATIONS

- Dressing changes to donor and recipient sites can be very painful; please give analgesia 30 to 60 minutes in advance.
- If there are any signs of infection or that the graft is not healing, inform the surgeon.
- If there is any collection of fluid or blood under the graft, inform the surgeon.
- If an upper limb has been grafted, it should be elevated for at least five days to decrease swelling.
- If a leg has been grafted, the patient may need to be on bedrest for the first five days; check with the surgeon.

REFERENCES


ICRC NURSING GUIDELINE 8

CARING FOR A PATIENT WITH A PRESSURE INJURY

OVERVIEW

A pressure injury (previously called a “pressure sore” or “pressure ulcer”) is a localized area of damage to the skin and/or underlying tissue, usually over a bony prominence. It results from pressure or pressure and shear combined. When the skin is compressed against a surface or force, blood flow to that area is decreased and cell damage can develop. The skin can then break down, causing a blister, wound or cavity.

OBJECTIVE

To ensure the nurse is capable of providing high-quality care to patients in order to prevent the development of pressure injuries, identify the stages of a pressure injury and manage them appropriately.

ASSESSMENT

Areas of pressure
Risk factors

- Impaired mobility (owing to paralysis, fractures, bed rest, etc.)
- Increased moisture (sweat, urine, etc.)
- Shear/friction
- Medical equipment causing pressure areas (cervical collars, oxygen masks, casts, splints, etc.)
- Items in pockets causing pressure areas (keys, mobile phones, etc.)
- Impaired sensory perception
- Decreased consciousness
- Poor nutrition (malnutrition and dehydration)
- Chronic illness
- Extremes of age
- Obesity

Classifying pressure injuries

<table>
<thead>
<tr>
<th>STAGE</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage 1</td>
<td>- Intact skin with non-blanching redness</td>
</tr>
<tr>
<td></td>
<td>- Patients with dark skin may not have visible redness, but the colour may differ from surrounding skin</td>
</tr>
<tr>
<td></td>
<td>- Area can be painful, firm or soft</td>
</tr>
<tr>
<td>Stage 2</td>
<td>- Partial-thickness loss of dermis presenting as a shallow, open wound with a red/pink wound bed without slough</td>
</tr>
<tr>
<td></td>
<td>- Can also present as an open or intact blister</td>
</tr>
<tr>
<td></td>
<td>- Can appear shiny or dry</td>
</tr>
<tr>
<td>Stage 3</td>
<td>- Presenting as full-thickness tissue loss where subcutaneous fat may be visible</td>
</tr>
<tr>
<td></td>
<td>- Slough may be present</td>
</tr>
<tr>
<td>Stage 4</td>
<td>- Presents as full-thickness tissue loss with exposed bone, tendon or muscle</td>
</tr>
<tr>
<td></td>
<td>- Slough or eschar may be present</td>
</tr>
<tr>
<td>Unstageable pressure injury (depth unknown)</td>
<td>- Full-thickness tissue loss where the base is covered by slough (green, grey, yellow or brown) and/or eschar (tan, brown or black)</td>
</tr>
<tr>
<td></td>
<td>- Until slough/eschar is removed, the true depth and stage of the injury cannot be identified</td>
</tr>
<tr>
<td>Suspected deep tissue injury (depth unknown)</td>
<td>- Localized purple or maroon colour or other discolouration</td>
</tr>
<tr>
<td></td>
<td>- Intact skin or blood-filled blister due to damage of underlying soft tissue</td>
</tr>
</tbody>
</table>

Assessing the skin

Observe the skin for:

- persistent erythema
- non-blanching erythema
- blisters
- localized heat or swelling
- localized induration
- for patients with dark skin, localized heat where tissue becomes cool if damaged.

A patient’s skin should be assessed for signs of pressure injury at the following times:

- on admission
- daily
- during dressing changes
- when the patient is turned/rolled.

Inspect skin around medical devices, including around:

- oxygen masks
- intravenous tubing
- nasogastric tubing
carInG for a patIent wItH a prESSurE Injury

• urinary catheters
• drains
• splints/plaster of Paris.

MANAGEMENT

Prevention
• Identify patients at a high risk of developing pressure injuries.
• Involve the physiotherapist. Nurses and physiotherapists are both responsible for preventing pressure injuries.
• Ensuring patients are turned regularly is an essential part of the patient’s nursing care: If a patient is on bed rest and immobile, regular pressure-area care must be done, and the patient must be turned/rolled every two hours. This should be done by at least two nurses, and the patient must not be dragged in bed. All staff members providing nursing care should be fully trained in turning and moving patients.
• Use pressure-relieving devices where possible (foam mattress overlays or pillows, cushions, heel protectors, etc.).
• Teach the patient how to relieve pressure using lifts or other pressure-relieving manoeuvres, as appropriate.
• Avoid positioning the patient on bony parts of their body.
• Where available, use manual handling aids to reduce friction and shear, such as slide sheets.
• Avoid putting the patient in lying positions that increase pressure, such as the 90-degree side-lying position.
• Ensure heels are suspended off the bed; use heel elevators where possible.
• Promote early mobilization and activity as tolerated.
• Inspect the skin regularly during each turning manoeuvre.
• Maintain a stable skin temperature. Use a fan or other cooling device if necessary.
• Keep skin clean and dry.
• Address any nutritional deficiencies and keep the patient on a healthy diet.
• Monitor the patient’s weight.

Treatment
Treatment will depend on the stage of the pressure injury and the characteristics of the wound. The choice of dressing will need to be discussed by the surgical team and will also depend on what products are available.

All stages of a pressure injury require pressure-area care and, if available, a skin-barrier product (to protect the surrounding skin).

<table>
<thead>
<tr>
<th>STAGE</th>
<th>TREATMENT</th>
</tr>
</thead>
</table>
| Stage 1              | - Preventive measures  
                        | - Transparent film or hydrocolloid dressing                               |
| Stage 2              | - Dressing that maintains a moist wound environment – hydrocolloids,    |
|                      |    foam and non-adhesive dressings                                        |
| Stage 3              | - Negative-pressure, honey-based, alginate or foam dressing              |
|                      | - Antibiotics, if infected                                                |
|                      | - Pain control                                                           |
| Stage 4 or unstageable| - Negative-pressure, alginate or rapid action capillary dressing        |
|                      | - Pain control                                                           |
|                      | - Antibiotics, if infected                                                |
|                      | - If necrotic tissue is present, debridement/surgery                     |
SPECIAL CONSIDERATIONS

- Address the underlying cause of pressure injuries.
- Never rub or massage a reddened area or pressure injury.
- Prevention is much better for the patient than treatment.
- If any signs of a possible pressure injury appear, report this immediately to the head nurse and document it in the patient notes.

REFERENCES


ICRC NURSING GUIDELINE 9

CARING FOR A PATIENT WITH BURNS

OVERVIEW

A burn is an injury to the skin caused by exposure to heat, electricity, chemicals or radiation. Managing burns requires access to extensive resources, which can be challenging in a low-resource setting.

Severe burns involve one or more of the following and require hospitalization:
- burns over more than 10% of total body surface area (TBSA) for children and more than 15% of TBSA for adults
- inhalation injury
- major trauma
- burns due to an explosion
- burns located on the face, neck, hands, genitals or joints
- patient below age three or above age 60.

Minor burns are burns that affect less than 10% of TBSA in children and 15% in adults, with no other risk factors.

A burn injury can be caused by various mechanisms, such as:
- flames
- scalding
- contact with hot objects or surfaces
- electrical shock
- inhalation
- radiation
- chemicals
- friction
- frost.

OBJECTIVE

To ensure the nurse is capable of providing high-quality care to patients with burns.

ASSESSMENT

When a patient arrives in the ward with a burn, first do a primary survey, followed by a thorough assessment of the burn.

Primary survey

In your primary survey, assess the following, starting with A (airway) and ending with F (fluid resuscitation):
- Airway with cervical spine immobilization
- Breathing
- Circulation and bleeding control
Assessing a burn

Once you have completed A through D, move to E, which includes burn assessment. To assess a burn, you must consider the circumstances, time and severity of the burn.

Circumstances

Ask the patient or a witness:

- how the burn was sustained
- whether they have any other injuries (risk of spinal injury, fractures)
- whether there was a lot of smoke
- whether the patient lost consciousness
- whether first aid was provided at the time of the burn and, if so, what first aid.

Time

Ascertain when the burn occurred, i.e. the date and time.

Severity

Burn severity should be assessed in terms of:

- size
- depth
- site
- inhalation injury
- other injuries.

Size: The size of the burn is estimated as a percentage of TBSA. There are two main methods for determining burn size:

1. Rule of palm
   - This can be used as a rapid assessment.
   - Use the size of the victim’s palm to represent 1% of TBSA.

2. Rule of nines
   - This is more accurate than the palm method; however, proportions differ from adults to small children – see below.

<table>
<thead>
<tr>
<th>PERCENTAGE OF TOTAL BODY SURFACE AREA</th>
<th>Adults</th>
<th>Children under the age of eight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head and neck</td>
<td>9%</td>
<td>18%</td>
</tr>
<tr>
<td>Upper limbs</td>
<td>9% per limb</td>
<td>9% per limb</td>
</tr>
<tr>
<td>Anterior trunk</td>
<td>18%</td>
<td>18%</td>
</tr>
<tr>
<td>Posterior trunk</td>
<td>18%</td>
<td>18%</td>
</tr>
<tr>
<td>Lower limbs</td>
<td>18% per limb</td>
<td>14% per limb</td>
</tr>
<tr>
<td>Perineal region</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Depth: Burns are classified from first to third degree according to which layers of the skin have been damaged. This will give you an estimate of the healing time needed.

<table>
<thead>
<tr>
<th>DEGREE</th>
<th>DEPTH</th>
<th>COLOUR</th>
<th>BLISTERS</th>
<th>CAPILLARY REFILL</th>
<th>SENSATION</th>
<th>HEALING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st</td>
<td>Epidermal</td>
<td>Red/brown</td>
<td>No</td>
<td>Yes</td>
<td>Painful</td>
<td>1–2 wk</td>
</tr>
<tr>
<td>2nd</td>
<td>Superficial dermal</td>
<td>Darker pigmentation or pale pink and moist</td>
<td>Yes</td>
<td>Yes</td>
<td>Painful</td>
<td>1–2 wk</td>
</tr>
<tr>
<td>2nd</td>
<td>Mid-dermal</td>
<td>Dark pink</td>
<td>Sometimes</td>
<td>Sluggish</td>
<td>+/-</td>
<td>3–6 wk</td>
</tr>
<tr>
<td>2nd</td>
<td>Deep dermal</td>
<td>Blotchy red with white spots</td>
<td>No</td>
<td>No</td>
<td>Nil</td>
<td>Very slow</td>
</tr>
<tr>
<td>3rd</td>
<td>Full-thickness</td>
<td>White or brown, leathery</td>
<td>No</td>
<td>No</td>
<td>Nil</td>
<td>No</td>
</tr>
</tbody>
</table>

Site: The severity, risks and treatment of a burn injury depend on where the burn is situated on the body.

- **Circumferential burns** – these are burns that span the entire circumference of a limb, the chest or the abdomen. They can be deep and are very dangerous owing to the subsequent swelling. They usually require escharotomy (incision through the burned tissue to relieve compression).
- **Hand burns** – these require urgent treatment. The hand can become swollen quickly, which can result in stiffness and contractures.
- **Chest burns** – full-thickness chest burns can cause difficulty breathing and may require escharotomy.
- **Facial and neck burns** – these can result in airway problems. Neck and mouth burns can also cause contractures.
**Inhalation injury:** An inhalation injury is damage to the respiratory system. If the history of the burn indicates possible inhalation injury, or if there are burns to the face or neck, you must suspect inhalation injury. The following signs may be present:

- difficulty breathing, shortness of breath or gasping
- chest wall indrawing
- wheezing or stridor
- bronchospasm
- coughing
- blackish sputum
- soot in the nose or mouth, or burned nasal hair
- hoarseness
- facial oedema
- anxiety or confusion
- headache.

**Examination for other injuries**

In step E of your primary survey, also examine the patient for other injuries, including:

- spinal injury
- airway obstruction
- head injury
- inadequate ventilation
- circulatory collapse.

**Secondary survey**

Once the patient is stabilized and the burn is dressed, carry out the secondary survey. This includes taking a comprehensive history and performing a detailed, head-to-toe examination.

**MANAGEMENT**

**First-aid treatment**

If patient arrives at the hospital without previous first aid, drench the burn in cold water and remove burned clothes.

If the burn is small, immerse it in or run it under cold water for 20 to 30 minutes.

**On admission**

In order to assess a patient’s burns, you must:

- expose the patient completely to examine all areas.
- remove all clothing and jewellery.
- keep the patient warm.
- inspect the patient’s front and back. If a cervical-spine injury is suspected, log-roll the patient to inspect their back.
- cover the patient with a clean sheet.

**Fluid resuscitation**

- If a burn covers over 10% of TBSA in a child or over 15% of TBSA in an adult, fluid resuscitation is required.
- You will need to know the percentage of TBSA burned, the patient’s weight and the time of injury.
- The most commonly used formula to calculate the fluid needed in the first 24 hours after injury is the Parkland formula.
• Traditionally, the Parkland formula defines the volume of fluid to be given (in ml) as 4 x weight (kg) x % TBSA burned; however, this tends to over-resuscitate and guidelines now modify the formula depending on the patient and type of burn.
• The ICRC recommends the following modified Parkland formula for fluid calculation:

\[
\text{Parkland formula} \\
\text{Volume (ml) = 2 x weight (kg) x % TBSA burned}
\]

Give 50% of this volume in the first eight hours after injury, and give the remaining 50% over the following 16 hours.

Type of fluid: Give crystalloid fluid – preferably either Ringer’s lactate or Hartmann’s solution. Normal saline can be used if nothing else is available.

Maintenance fluid: Fluid requirements after the first 24 hours will be guided by urine output.

<table>
<thead>
<tr>
<th>ADEQUATE URINE OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
</tr>
<tr>
<td>0.5–1 ml/kg/hr</td>
</tr>
</tbody>
</table>

Children also require a maintenance fluid like dextrose saline. (Refer to chapter 7 of the Interburns manual; see Links section, below.)

Investigations
The following investigations should be carried out on admission:
• haemoglobin count
• electrolyte levels
• glucose level
• if there is a history of trauma, possibly a chest and pelvis X-ray
• assessment of the patient’s tetanus immunization status – if no cover, give a tetanus booster, and for patients at a high risk also give tetanus immunoglobulin.

Monitoring a patient with severe burns
On admission and during the first 24 hours, patients should be monitored hourly in a high-dependency unit (HDU) if possible. Once the patient is stabilized, monitoring can be reduced to every four hours. The patient should remain in the HDU for at least the first 24 hours.

The following must be monitored:
• pulse
• blood pressure
• respiration rate
• pulse oximeter
• consciousness level
• capillary refill
• warmth of peripheries
• urine output, strictly documented on a fluid-balance chart
• pain score.

Analgesia
Major burns can be very painful and cause the patient a lot of anxiety and distress. Analgesia must be a priority. Analgesia should always be given prior to a dressing change.
The anaesthetist will prescribe the analgesia for the patient, but keep in mind the following.

- **Minor burns**
  Paracetamol, and sometimes tramadol, should be sufficient.

- **Moderate pain**
  Give oral paracetamol and oral tramadol.

- **Moderate to severe pain**
  Oral paracetamol and morphine are required. Note: in the first 48 hours after a burn, oral drugs are not properly absorbed in the digestive tract, so either intravenous or subcutaneous morphine should be used.
  
  - **Morphine**
    0.2–0.5 ml/kg for adults and children. For children between three months and one year, half the dose. For children under three months, quarter the dose.

  A doctor will need to be present when morphine is given.

**Surgery**

- If the patient has circumferential burns, they may need escharotomy. The surgeon should perform this in the operating theatre within eight hours of injury.
- Some burns will require surgery to scrub and debride the dead tissue and to accurately assess the extent of burn.
- Skin grafts may be needed for full-thickness burns.
- If the airway is compromised by a burn or inhalation injury, a tracheostomy may be needed.

**Nutrition**

- Good nutrition is critical to wound healing. For patients with severe burns, a normal diet is insufficient, and enteral feeds are preferred. Enteral feeding is also required if the patient is unable to eat. This should be started on admission, the earlier the better.
- Burns patients require high-protein, high-calorie diets with frequent, smaller meals throughout the day. The diet should include therapeutic milk, plumpy nut, meat, pulses and egg mixes.
- Patients will also require multivitamins.
- Patients must be weighed weekly.

**Wound care**

Good management of wounds is essential. This includes wound dressings, prevention of infection, correct positioning, pressure-area care and assessment for surgery.

Key principles of wound dressings:

- Give analgesia 30 minutes prior to a dressing change.
- Wounds should be thoroughly cleansed.
- Dressings should be thick and firm but not too tight.
- Elevate limbs to prevent oedema.
- Dressings should initially be done daily and then on alternate days once the burn wound is less wet. However, dressings on infected burn wounds and wounds that are highly productive should be changed daily.
- The first dressing should be done in the operating theatre as should subsequent dressings if very painful.

<table>
<thead>
<tr>
<th>PROCEDURE FOR DRESSING BURN WOUNDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Prepare the patient, set up the dressing trolley, perform hand hygiene and put on gloves as per steps 1 to 12 of the dressing procedure in Guideline 2, on wound care.</td>
</tr>
<tr>
<td>2. Remove the previous dressing.</td>
</tr>
<tr>
<td>3. Remove your gloves, use hand gel and put on new gloves.</td>
</tr>
<tr>
<td>4. Loose tissue and blisters can be debrided with sterile forceps.</td>
</tr>
</tbody>
</table>
PROCEDURE FOR DRESSING BURN WOUNDS

5. Clean the burn with povidone-iodine (PVI) scrub solution (one part 7.5% PVI to four parts 0.9% saline). If the burn is heavily contaminated, a deep and more vigorous cleaning will be needed. If it is too painful for the patient, this should be carried out in the operating theatre under anaesthesia/sedation. For superficial, less contaminated burns, gentle wiping is sufficient.

6. Rinse the burn with 0.9% saline.

7. Dry the skin with sterile gauze. Do not rub the skin; dry it by patting gently.

8. Remove your gloves, use hand gel and put on sterile gloves.

9. Apply silver sulfadiazine 1% with your gloved hand. Apply it generously to the entire burned area, about 3–5 mm thick. Do not apply it to the mouth or eyelids.

10. Remove your gloves and put on new gloves.

11. Cover the wound with Jelonet or another paraffin gauze. Do not use a circular dressing.

12. Cover the gauze with a sterile compress unfolded into a single layer.

13. If there are large amounts exudate, apply absorbent pads of wool.

14. Wrap with a crepe bandage, firmly but not tightly.

15. Elevate the extremities and immobilize them in collaboration with the physiotherapist.

NB Chlorhexidine can be used to clean burn wounds if it is available.

Minor burns
Dressing can be done on an outpatient basis. Use silver sulfadiazine or petroleum gauze, depending on the burn. If the burn is small, superficial and seen early (with no signs of infection) it can be cleaned with saline or soapy water.

Facial or perineal burns
Dressings to these areas are difficult to apply and hard to make stick. In these cases, the exposure method can be used: Clean the burn with saline and then cover it with a topical ointment such as paraffin. The aim is for a dry eschar to form. This technique is not to be used for other burns.

Eye burns
Irrigate the eye with sterile water for one hour. Refer the patient to an eye specialist if available.

Note: The open technique (exposure method) whereby a patient is left naked under a mosquito net or receives water-immersion therapy (bath) is no longer used. See “Links”, below.

Physiotherapy and positioning
• The physiotherapist should be involved in burn-patient care from the outset.
• Correct positioning of the burned area and the patient must be ensured to prevent oedema, stiffness and contractures. This is the key role of the physiotherapist.
• Pillows and towels can be used to keep limbs in alignment.

Other aspects of nursing care
• Ensure vital signs are taken regularly.
• Strictly maintain the patient’s fluid-balance chart.
• Carry out regular pressure-area care (every two hours).
• Keep the patient sitting upright to help with breathing if necessary. Support the patient with pillows.
• Prophylactic antibiotics are not recommended but may be necessary in the presence of a wound infection.
• Keep the patient warm.
• Patients must be nursed in a clean area of the ward. If a single room is available this is preferred to ensure proper temperature and scrupulous hygiene. Ensure that there are fly screens on any open windows as well as mosquito nets.
• Monitor the patient’s mental health to observe for signs of depression, post-traumatic stress or other mental-health issues concerned with altered appearance, body image and acceptance. Always refer severely burned patients to the mental-health and psychosocial support team for mental-health support.
• Enlist the support of relatives and other carers to ensure optimal recovery from burns.
• Remind the patient and attendant that paraffin gauze is flammable and the patient should not smoke or get near an open flame.

SPECIAL CONSIDERATIONS

Severe burns should be referred to a specialized burn centre, where available.

Do not forget tetanus immunization.

LINKS

Health wiki: Interburns Essential Burn Care Training Manual
https://collab.ext.icrc.org/sites/TS_ASSIST/activities/HEALTH/Hospital_services/06_Nursing/01_Burns_Nursing_Care/Interburns_Essential_Burns_Care_Manual.pdf

Health wiki: Médecins Sans Frontières Clinical Guidelines (see chapter on burns, pp. 287–294)

Health wiki: ICRC physio cards – Basic guideline for patient with burns
https://collab.ext.icrc.org/sites/TS_ASSIST/activities/HEALTH/Hospital_services/20_Ressource_Centre_Documents/Physio/Hospital%20PT%20Cards/Basic%20guideline%20for%20patient%20with%20burns%20and%20skin%20grafts_Feb14.doc?action=default

Health wiki: “Exposure method for burns is outdated”, statement from Dr Tom Potokar
https://collab.ext.icrc.org/sites/TS_ASSIST/WIKIHealthUnit/Pages/All_news.aspx#burns_potokar

REFERENCES


ICRC NURSING GUIDELINE 10

CARING FOR A PATIENT WITH WEAPON WOUNDS

OVERVIEW

Weapon wounds are always considered contaminated and often result in massive destruction of soft tissue, bones and other structures. The ICRC practices three basic principles for managing weapon wounds:

• Adequate debridement is performed (adequate surgical excision).
• The wound remains open under a secure dressing, which is left undisturbed.
• Delayed wound closure is performed (delayed primary closure).

Surgical management according to these three principles has been proven to be safe and effective. It prevents complications such as infection and permits early wound closure — and thus a quicker recovery. It also reduces the number of dressing changes required, which makes nursing care easier and avoids unnecessary, painful procedures for the patient.

OBJECTIVE

To ensure the nurse is capable of providing high-quality care to a patient with weapon wounds.

ASSESSMENT OR DESCRIPTION

The surgeon and anaesthetist will assess the patient’s condition and the wound(s) on their arrival in the hospital. They will decide if the patient needs surgery and how urgently.

If the patient requires admission, the nurse must check and record their vital signs, pain level and consciousness level. Any current dressing should be removed and the wound readied for review by the surgeon. Once this has occurred, the wound should be re-dressed as per Guideline 2, on wound care.

The following should be carried out as prescribed:

• intravenous cannula inserted and bloods taken
• antibiotics given
• analgesia given
• tetanus booster given, and possibly tetanus immunoglobulin
• intravenous fluids administered.

If the patient requires surgery, they must be prepared as per the preoperative checklist.

MANAGEMENT

Management in the operating theatre

The surgical team will perform a debridement on the weapon wound. This will involve removing all dead, damaged or infected tissue to promote optimal wound healing. The surgeon will apply a dressing of single-layer gauze, covered by a bulky, absorbent dressing and held in place with a crepe bandage. This dressing is
designed to absorb blood and exudate from the wound. Limbs with large wounds should be immobilized with a plaster of Paris backslab.

After the initial debridement, the surgeon will schedule a delayed primary closure (DPC), usually five days later.

A DPC involves suturing a wound closed, covering it with a split skin graft, or a combination of both. However, if the wound is very contaminated and more dead or infected tissue remains, a further debridement may be required. The surgeon will make this assessment during the planned DPC. If a re-debridement is to be performed, the wound and dressing must be left undisturbed for a further five days and the patient observed for signs of infection. Often the wound will be re-debrided once in surgery and then can be dressed on the ward, as per the surgeon’s orders. Dressings should be changed regularly according to the doctor’s orders until the wound is ready for a DPC.

Nursing care
A dressing is only to be opened and dressed at the surgeon’s instructions. The surgeon will write in the notes or on the bandage for the date of the next change of dressing, debridement or DPC.

Update the patient’s whiteboard and nursing notes with the date of the next change of dressing/debridement/DPC.

If exudate/blood soaks through the bandage, the dressing must not be removed but reinforced with extra layers of fluffy gauze and crepe bandage and the head nurse notified.

The nurse should observe the patient for signs of infection, including:
• complaints of pain at the wound site
• foul-smelling dressing
• increased temperature
• increased heart rate
• excessive wound discharge
• distension or swelling around the dressing.

At any sign of infection, document it and report it immediately to the head nurse and surgeon.

REFERENCES


PREOPERATIVE PATIENT CARE

OVERVIEW

Care for a patient undergoing surgery begins preoperatively. It is important that the patient be assessed prior to surgery and that all necessary investigations be carried out and results communicated to the surgical team. Rigorous preoperative care will ensure optimal patient safety. This includes:

- physical preparation – checking for any comorbidities or illnesses and the overall health of patient
- psychological preparation – ensuring the patient is educated on and understands the surgery, consent is obtained and stress is reduced
- maintenance of the patient’s privacy and dignity, respecting local customs.

OBJECTIVE

To ensure the nurse can confidently carry out preoperative assessment and care of all patients, including emergency cases, and can recognize when there may be an increased risk of complications.

ASSESSMENT

A preoperative assessment should include taking a thorough history, conducting a physical examination and ordering tests.

History (usually taken by a clinician)

- Medical history
  - History of the presenting illness
  - Previous medical history (any cardiac or respiratory issues, etc.)
  - Previous surgical/anaesthesia history
  - Medications
  - Allergies
- Family history of any illnesses, surgery, etc.
- Social history, including where they live and family support
- Drug use – alcohol, smoking and illegal substances

Physical examination

- The doctor should do a full physical examination, from head to toe.
- The nurse should check vital signs and the patient’s general condition.

Investigations (ordered by doctor as required)

- Blood tests
- Urine test
- Pregnancy test
- Electrocardiogram
- X-rays
PREOPERATIVE CHECKLIST

The preoperative checklist should be filled out by the nurse the night before surgery. The morning of surgery, it should be checked again before the operation and the remaining details completed.

The morning of surgery, the following must be done before the operation is carried out:

- Ensure the consent form has been signed by the patient (or their legal representative) and the patient understands the procedure.
- Check whether any pre-medication or intravenous fluids have been prescribed and whether they have been given.
- Check and record the patient’s vital signs and general physical and mental condition. If vital signs are abnormal, or if the patient has a cough or severe anxiety, notify the doctor.
- Ensure the patient has showered/washed and is in a clean gown.
- Remove any jewellery, dentures, hearing aids and glasses.
- Shave the operative site, if required.
- If applicable, follow the specific nursing guideline for bowel prep (Guideline 16) or skin grafts (Guideline 7).
- Check that the patient is fasted and record the time.
- Check whether the patient has voided their bladder and/or bowels.
- Prepare the patient’s file: ensure all blood and X-ray results, the consent form and any other paperwork are present.
- Ensure allergies are documented in red on the patient file.
- Put a name band on the patient.
- Check the order of the operating theatre list: ensure that paediatric and diabetic patients are at the top of the list.
- When the patient is ready for surgery, call for a porter.
- Children: ensure children under 15 years old have been weighed prior to surgery. A parent/carer can accompany the child to the operating theatre.
- Adults: patients should be weighed on admission and have a recent weight recorded prior to surgery.
- Hand the patient verbally over to the operating theatre/recovery nurse together with all the necessary completed documentation: consent form, fasting time, last void, vital signs, X-rays and any specific concerns.

Emergency cases

When a patient arrives in the hospital and needs emergency surgery, the following should be carried out as quickly and efficiently as possible, using all available skilled members of the team:

- Vital signs should be checked and recorded.
- An intravenous cannula should be inserted, intravenous fluids started and bloods taken, if possible.
- Prepare the consent form for signature.
- Remove the patient’s clothing, jewellery, etc. (keep them together in a safe place or hand them over to a relative) and wash the affected area if time allows.
- Check and record weight if the patient is under 15 years old.
- Record when the patient last ate/drank.
- Administer and record any prescribed medication.
- Put a patient file together, including patient identification number and essential details.
- Remain calm and explain the specific procedures to the patient to ensure their compliance and reduce their anxiety. (Use a translator if necessary.)
- Be prepared to carry out preoperative invasive procedures as necessary (for example, inserting a chest drain, urinary catheter or nasogastric tube).
- Ensure any relatives/carers are given an explanation of what is happening and kept up to date by a staff member.
- Ensure the safe and efficient passage of the patient to the theatres. Prepare for the post-operative reception of the emergency patient in recovery, the high-dependency unit or the ward, as appropriate.
- Ensure excellent communication throughout with all members of the surgical and patient-care teams.
Paediatrics

- Remember children under 15 years old must be weighed.
- If child has severe malaria, surgery may need to be delayed. Always monitor for fever and other signs of malaria. Carry out a malaria test if necessary.
- A nutritional assessment should be done by the anaesthetist, and surgery should be avoided for malnourished children unless it is an emergency.

FASTING GUIDELINES

- The night before surgery, the patient and their family should be informed about fasting times. This must be explained in detail, with an interpreter if needed, to ensure full compliance.
- Ensure all night staff members are aware of all patients’ specific fasting times.
- Put a “nothing by mouth” (nil per os/NPO) sign at the end of the patient’s bed.
- Ensure all patients receive any prescribed intravenous fluids overnight.

Follow the below table for fasting times.

<table>
<thead>
<tr>
<th>FOOD/DRINK</th>
<th>FASTING TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solids (all food)</td>
<td>6 hours</td>
</tr>
<tr>
<td>Clear fluids (water, apple juice, black tea, black coffee)</td>
<td>2 hours</td>
</tr>
<tr>
<td>Infant formula/non-human milk</td>
<td>6 hours</td>
</tr>
<tr>
<td>Breast milk</td>
<td>4 hours</td>
</tr>
<tr>
<td>Oral medications with 30 ml of water</td>
<td>2 hours</td>
</tr>
</tbody>
</table>

For further information, refer to ICRC Fasting and Nutrition Guidelines (link below).

LINKS

Health wiki: Preoperative fasting guidelines

Health wiki: Anaesthesia Toolbox nutrition

REFERENCES


ICRC NURSING GUIDELINE 12

CONSENT

OVERVIEW

For a patient to consent to treatment, they must understand and give permission before they receive any type of medical treatment, procedure, investigation, intervention or examination. The person has a right to make decisions about their own health-care needs. This includes the right to consent to receive care, decline care or to change their decision.

TYPES OF CONSENT

• **Verbal**: The patient says they agree to receive care, e.g. they say, “Yes, I will go for an X-ray.”
• **Written**: The patient signs a consent form for a procedure, e.g. surgery.
• **Implied**: The patient gives non-verbal consent, e.g. by holding out their arm to have their blood pressure checked.

INFORMED CONSENT

For consent to be valid, it must be voluntary and informed, and the person giving consent must have the capacity to make the decision.

• **Voluntary**: The decision to consent or not to consent to treatment must be made by the person and not forced upon them.
• **Informed**: The person must be given all the information about what the treatment involves, including benefits and risks, alternative treatments and expected outcomes.
• **Capacity**: The person must be capable of giving consent: They must not be under the influence of drugs, alcohol or mind-altering medications. They must be of sound mind.

SPECIAL CIRCUMSTANCES

• **Children under 16**: Their parent or legal guardian must give consent.
• **Cognitive impairment**: If a person has dementia, severe learning disabilities, brain damage, schizophrenia, bipolar disorder or any other condition where their mind is impaired or disturbed and they are therefore unable to make an informed decision, the medical team will need to discuss what is best for the person and make a decision, and they will need to involve the family and next of kin (if they are present or contactable).
• **Personal beliefs**: If a person refuses treatment because of religious or cultural beliefs, this is their right. As long as they understand the risks of refusing treatment and have the capacity to decide, treatment cannot be forced on them.
• **Cultural differences**: In some cultures, a male relative or community elder has to give consent. In these cases, the nursing staff must be aware of and respect this requirement.
• **Exceptions**: If a person is incapacitated (e.g. unconscious) and needs life-saving emergency treatment, consent is not needed.
CONSENT FOR SURGERY

- Consent is required before any surgical procedure or intervention.
- It is the surgeon’s responsibility to ensure informed and written consent is obtained before surgery.
- Legal requirements and national regulations of the host country must be adhered to.
- If the surgeon does not speak the patient’s language, an interpreter must be used.
- There should be a witness to the consent.
- The patient or guardian should sign the consent form with either a signature or thumbprint.
- Consent should be obtained on the ward, not in the recovery area or anaesthesia bay.
- Consent to surgery must be written, not just verbal.

CONSENT FORM

The consent form should be clear and legible and include:
- a statement that the planned procedure has been explained to the person/their guardian and that they understand the purpose and potential risks
- the nature of the planned procedure
- the full name and signature or thumbprint of the person or their guardian.
- the date of signing
- the name and signature of the surgeon.

TIPS FOR GAINING CONSENT

If a person or their family member refuses to consent to a procedure, try the following:
- Be prepared for obtaining consent to take some time and discussion, and be patient with them during the process.
- Be ready to answer further questions.
- Make sure the patient and their relatives understand the risks of refusing the procedure.
- If there is a language barrier, ensure an interpreter is available.
- Ensure consent forms are translated into the local language(s).
- Request support from the mental-health team to explore and alleviate any possible cognitive impediments to giving consent.
- In the case of amputations, enlist the support of a successful fellow amputee with a prosthesis to demonstrate the quality of life post-amputation.
- Enlist the support of a community elder or religious leader if appropriate.
- Be respectful, kind and non-judgemental in the event of a refusal to consent.

REFERENCES


POST-OPERATIVE CARE

OVERVIEW

Patients who have undergone surgery require close observation, first in the recovery room and then on the ward.

The ICRC’s *Anaesthesia Handbook* strongly recommends using a designated recovery area for patients or for patients to recover in the operating theatre. Where this is not possible, the patient should be nursed on the ward in a visible bed (close to the nurses’ station) and be monitored closely.

A recovery room (or “RR”) is also known as a post-anaesthesia care unit (or “PACU”). It is where patients receive the short-to-medium-term care that they require following a general, spinal or epidural anaesthesia until they are stable, conscious, alert and thus safe to return to the ward. One-to-one nursing care is required in a recovery room until the patient can maintain their own airway, is well oxygenated and has stable vital signs.

OBJECTIVE

To ensure the nurse can optimize patients’ post-operative condition and minimize the risk of post-operative complications by delivering high-quality care both in the recovery room and on the ward.

NURSING CARE IN THE RECOVERY ROOM

When a patient is transferred from the operating theatre to the recovery room, the recovery nurse should obtain a verbal handover and completed documentation from operating-theatre staff detailing the operation done, type of anaesthesia given, patient condition and specific post-op orders.

The recovery nurse should use the recovery-room chart to document care.

The patient should receive one-to-one care. The following should be monitored at least every 15 minutes, or more frequently if required:

- **Airway** – Check the patient’s airway and ensure it is patent, ensure their head is elevated to keep the airway open, and if there are signs of obstruction perform a head-tilt/chin-lift and call for help. If necessary, ensure an oropharyngeal (Guedel) airway or laryngeal mask airway remains in position and patent until the patient starts to wake up and resist.
- **Breathing** – Check if oxygen therapy is required and administer it accordingly. Monitor and record the patient’s respiratory rate and oxygen saturation.
- **Circulation** – Monitor and record the patient’s pulse and blood pressure. Check their skin colour and any changes to skin colour. Look for bleeding and report it if present. Monitor and record the patient’s peripheral pulses if necessary.
- **Disability** – Check the patient’s neurological status using their AVPU score (Alert, Voice, Pain, Unresponsive), check their blood sugar if they are diabetic and check their pain level.
- **Exposure** – Ensure the patient is kept warm and check their temperature.
- **Other** – Check that the wound is not bleeding and the dressing is intact, check all drains and catheters, check whether intravenous (IV) fluids are needed, and ensure the IV line is patent.
• Spinal anaesthesia – Make neurovascular observations, including for limb sensation.
• Control the patient’s pain and nausea/vomiting in recovery. Inform the anaesthetist if additional medication is required.

Requirements for the patient to return to the ward:
• The patient is conscious.
• The patient is maintaining their own airway.
• The patient is breathing well.
• Vital signs are stable.
• Pain and nausea/vomiting are controlled.
• The IV cannula is in situ.

If all the above are met, ensure the anaesthetist gives permission for the patient to return to the ward.

Call the ward and ask the ward nurse and porter to come and collect the patient.

Give a verbal handover and all completed documentation to the ward nurse. Provide information specifically on the patient’s condition, surgical interventions, anaesthesia type, post-op orders, drugs given in recovery, vital signs in recovery and any specific concerns or instructions.

Equipment required in the recovery room
• Oxygen cylinder and spare
• Oxygen masks and tubing
• Suction machine and suction equipment
• Basic airway equipment: oropharyngeal airways, nasopharyngeal airways, bag-valve mask
• Monitoring equipment: blood-pressure machine, pulse oximeter, clock, stethoscope, thermometer
• Trolley set up with gloves, tissues, a sharps bin, dressing material, cannulation material, IV fluids and giving sets
• Emergency bag or cupboard
• Defibrillator (where available)
• Cleaning material and a clinical-waste bin

The recovery room must be well lit and spacious. It must not be used as a storage facility.

POST-OPERATIVE NURSING CARE ON THE WARD

Once the patient arrives in the ward from operating theatre/recovery, the nurse should make an assessment of the patient and ensure they are comfortable.

The following should then be monitored:

Observations
• Observations should be made on the patient’s arrival on the ward and every 30 minutes for four hours, and then every four hours thereafter if the patient is stable.
• Blood pressure, pulse, respiration rate, temperature, oxygen saturation levels, and AVPU and pain scores should be checked and recorded.

Medication orders
• Check prescriptions for medications, including analgesia, antibiotics and IV fluids.
• Ensure required medications are given.
• Check that the IV line is patent and IV fluids are running as per prescription.
• Check the patient’s pain level and provide analgesia accordingly.
Wound
- Check all wound dressings for signs of bleeding; if there is bleeding, reinforce the dressing and inform the head nurse or surgeon. Observe the surrounding skin for signs of swelling, and check peripheral pulses if necessary.
- Make sure dressings are intact.
- Ensure the next intervention (change of dressing, removal of sutures, etc.) is documented and written on the patient’s whiteboard.

Catheters/drains
- Check that drains or catheters are secure and patent.
- Document the amount and type of drainage.
- Do not allow catheter/drainage bags to lie on the floor.

Intake/output
- Check post-op orders regarding diet.
- If patient is to have nothing by mouth (nil per os/NPO), ensure the NPO sign is fully visible at the end of their bed. Ensure the patient and their relatives/carers are fully aware that the patient can have nothing by mouth.
- If the patient is prescribed a clear fluid or other diet, ensure that this is ordered and offer it once the patient is fully awake. Explain the reasons for the dietary restrictions to the patient and their relatives/carers to ensure compliance.
- Commence a fluid-balance chart – record all input and output (urine, faeces, drainage, intravenous fluids, medications, oral intake, etc) over a 24-hour period.
- Monitor and document when patient passes urine for the first time post-operatively.
- If the patient does not pass urine within six to eight hours post-operatively or has a distended bladder or discomfort, notify the doctor. They may need a urinary catheter.

Hygiene/positioning
- Follow post-op orders regarding positioning of the patient.
- In collaboration with the physiotherapist, ensure the patient is comfortable and in the correct position.
- Attend to pressure-area care every two hours while the patient is immobile.
- Support the physiotherapist with specific mobility requirements.
- Assist with hygiene and toileting needs and enlist the support of relatives/carers if available and appropriate.

Encourage deep breathing exercises and early mobilization if appropriate.

ANAESTHESIA TYPES AND REQUIREMENTS

Spinal anaesthesia
Patients who receive spinal anaesthesia must be observed closely to ensure that paralysis does not spread and that full sensation returns over time.

Check the following every 30 minutes until the patient has full sensation:
- respiratory rate
- blood pressure
- heart rate
- sensation in and movement of legs.

Observe and report when the patient passes urine. If the patient is unable to void, check for a distended blad-der. If after six to eight hours the patient has not voided, contact the doctor.
The patient does not have to lie flat; they can have their head/upper body elevated on pillows. As the spinal anaesthesia wears off, the patient will need analgesia to maintain pain control.

**Local anaesthesia/regional blocks**
Check for any reactions to the local anaesthetic and inform the anaesthetist if you observe or the patient reports:
- dizziness
- headache
- blurred vision
- twitching muscles
- pins and needles.

**Ketamine**
Ketamine is the ICRC’s anaesthetic of choice for major surgery in low-resource environments.

NB Ketamine can raise the patient’s blood pressure and heart rate, increasing cardiac output. Other side effects include:
- hypersalivation (may need suction)
- nightmares or hallucinations.

**REFERENCES**


ICRC NURSING GUIDELINE 14

PAIN MANAGEMENT

OVERVIEW

The International Association for the Study of Pain defines pain as an “unpleasant sensory and emotional experience associated with actual or potential tissue damage”. Pain is either nociceptive or neuropathic. Nociceptive pain is pain that follows the normal pain pathway that happens as a result of tissue injury or damage. Neuropathic pain is related to abnormal processing in the nervous system, when nerve injury or dysfunctions happen and result in pain.

There are three types of pain:

- **Acute pain**: Lasts less than three months. Causes can be surgery, trauma or musculoskeletal, visceral or post-procedure injury.
- **Chronic pain**: Lasts more than three months. Causes can be non-malignant conditions or neuropathic, inflammatory or musculoskeletal conditions.
- **Cancer pain**: Is related to a malignancy or cancer treatment.

The ICRC *Anaesthesia Handbook* states that pain should be treated by balancing the 3 Ps: psychology, physical methods and pharmacology (drugs).

OBJECTIVE

To ensure the nurse is capable of providing high-quality patient pain management through interventions that effectively support and manage pain and related stress for patients.

ASSESSMENT

Signs and symptoms of pain include:

- complaint of pain
- crying, moaning
- tenseness
- anxiety
- sweating
- pale skin
- restlessness
- increased blood pressure
- increased heart rate.

**Pain assessment**

A person’s pain level should be assessed prior to giving them analgesia. It is important to assess pain properly. The mnemonic “PQRST” can help. It stands for:

- **P**: Provocation/Palliation
  - What caused the pain? What makes it better/worse? What were you doing when the pain started?
- **Q**: Quality/Quantity
  - What does the pain feel like? Is it sharp, dull, stabbing, burning, etc.?
• R: Region/Radiation
  – Where is the pain located? Does it radiate, or is it localized?
• S: Severity
  – How serious is it? How long does it last?
• T: Timing
  – When did it start? How long does it last? How often do you get it? Is it sudden or gradual?
  When does it occur?

Pain scale
To assess a person’s level of pain, various scales can be used depending on their culture, age and level of literacy/numeracy.

Verbal scale
Ask the patient to describe their pain using one of the words below:
• None
• Mild
• Moderate
• Severe

Number scale
Ask the patient to rate their pain from zero to three:
0 - No pain
1 - Mild pain
2 - Moderate pain
3 - Severe pain

Faces scale
Using a diagram of six faces from smiling to tearful, ask the patient to point to the face which best describes their pain. This works particularly well for paediatric patients or where there is a language barrier.
 MANAGEMENT

Analgesia
The nurse should give the patient analgesia as prescribed by the anaesthetist. It is the nurse’s role to check
the analgesia is effective and is managing the pain. If it is not, they must report to the doctor.

The patient’s pain level should be assessed every time their vital signs are checked and also 30 minutes after
any analgesia is given.

| ANALGESIA DOSING FOR ADULTS (SEE ICRC ANAESTHESIA HANDBOOK, P. 79) |
| Drug | Route/dose | Comment |
| Paracetamol | 1 g four times daily orally (PO)/intravenously (IV) IV 15 mg/kg | Max. 4 g per day. If < 50 kg, max. 2 g per day. |
| Ibuprofen | 200–400 mg three times a day PO | Take caution with asthma, renal impairment, ulcers, pre-ectampia. Avoid if there are bleeding concerns. |
| Diclofenac | 75 mg twice daily IV/rectally or 50 mg three times daily PO | Max. 150 mg per day. Can cause kidney damage. |
| Tramadol | 50–100 mg every four hours PO/IV | Max. 600 mg per day. Useful in neuropathic injury. |
| Morphine | 5–15 mg every four hours subcutaneously/intramuscularly IV 1–2 mg increments, titrated | Not used on ward. |
| Gabapentin | 300 mg once daily PO, up to 300 mg three times daily | For neuropathic pain and amputations. |

| ANALGESIA DOSING FOR CHILDREN (SEE ICRC ANAESTHESIA HANDBOOK, P. 80) |
| Drug | Route/dose | Comment |
| Paracetamol | 15 mg/kg PO/IV/rectally | Max. 90 mg/kg per day. If > 50 kg, use adult dose. |
| Ibuprofen | > 5 kg: Max. 30 mg/kg/day in 3–4 divided doses | Take caution with asthma and renal impairment; use for 3 days max. |
| Diclofenac | > 12 kg: 1 mg/kg three times daily | Max. 100 mg per day. Take caution with asthma and renal impairment; use for 3 days max. |
| Tramadol | > 12 years only: 50–100 mg every six hours | ICRC use with paediatrics. |
| Morphine | 0.05–0.1 mg/kg every four hours subcutaneously/intramuscularly IV 0.05 mg/kg increments, titrated | Not usually used with children, but can be used in conflict zones where there are significant paediatric amputee casualties. |

NURSING CARE
The nurse should take a patient’s complaints of pain seriously. In addition to pharmacology, there are other
methods to control pain. The nurse can:
• discuss the patient’s pain with them, listen and be supportive
• identify the causes of pain and try to remedy them
• change the position of patient
• ensure pressure-area care is carried out and inspect all pressure areas
• massage the area if culturally appropriate
• use distraction techniques – reading, games, movies, music, jokes, etc.
• take them outside for a change of scenery
• encourage friends or family to visit
• hold a multidisciplinary meeting (including mental health and psychosocial support (MHPSS) staff member and the physiotherapist) to discuss other methods of pain control
• enlist the support of MHPSS to explore psychological causes of pain and possible treatment methods
• encourage a warm shower or wash
• provide an ice pack or warm pack
• involve the physiotherapist and encourage deep breathing and gentle mobilization
• encourage meditation.

SPECIAL CONSIDERATIONS

• Always document a patient’s pain level in the patient notes.
• The ICRC is limited in what types of analgesia can be used, and it is important to follow the protocol. There are some places where access to strong analgesia and opioids is very restricted.
• When a patient has received opioids, their respiratory rate must be monitored carefully. There is a risk of respiratory depression, so oxygen should be available.
• For nerve pain, gabapentin or carbamazepine should be used.

LINKS

Health wiki: ICRC pain-management poster

Health wiki: World Health Organization guidelines on post–op pain relief
https://collab.ext.icrc.org/sites/TS_ASSIST/activities/HEALTH/Hospital_services/20_Ressource_Centre_Documents/Anaesthesia/Painchildren.pdf

REFERENCES


ICRC NURSING GUIDELINE 15
CARING FOR A PATIENT WITH A STOMA

OVERVIEW

The word “stoma” is used to describe a surgically created opening that connects the bowel or urinary tract to the outside environment to drain the contents externally.

There are three types of stomas:
• Colostomy: Part of the large intestine is diverted out through the abdomen; it drains solid to semi-solid material.
• Ileostomy: Part of the small intestine is diverted out through the abdomen; it drains liquid material.
• Urostomy: The ureters are diverted externally to bypass the bladder; it drains urine.

Stomas can be:
• temporary, diverting contents externally to allow the bowel/bladder to heal or rest and to protect an anastomosis
• permanent, after resection of the rectum or all/part of the colon when the bowel cannot be restored.

OBJECTIVE

To ensure the nurse is capable of providing high-quality care to a patient with a stoma.

REASONS FOR A STOMA

• Penetrating injury to the bowel, rectum or urinary tract
• Vesical-vaginal or rectovaginal fistula
• Cancer
• Crohn’s disease
• Ulcerative colitis

NURSING CARE

Preoperative care
• Spend time explaining to the patient the reasons for the stoma, how it will be managed and whether it will be temporary or permanent.
• Ensure the surgeon marks the stoma site.
• Educate the patient on how to successfully accept to and manage the stoma bag.
• Ensure consent to surgery is given.
• If necessary, ask mental health and psychosocial support (MHPSS) to provide additional psychological support to the patient.
Post-operative care
When the patient returns to ward after surgery, the observations and documentation below must be carried out.

Observations
Check and record vital signs as per Guideline 13 (on post-operative care) and then every four hours for the first 48 hours.

Also check the stoma every four hours for 48 hours, observing the following:

- Colour
  - Dark pink/red: The stoma is healthy with good blood supply.
  - Pale pink: The stoma has decreased perfusion.
  - Dark red/purple: Bruising is present.
  - Grey/black: There is ischemia or necrosis. This is an emergency – call the surgeon immediately.
  - Whitish: There is decreased blood flow, and the stoma is dying. This is also an emergency.

- Appearance
  - A healthy stoma will be red/pink and moist.
  - Shape: Is it round, oval or irregular?

- Skin around stoma
  - The colour should be same as the rest of the skin.
  - Check for swelling or bruising.
  - Integrity: Is the skin intact or macerated? Is there any rash, ulcer or broken skin?
  - Turgor: Is it soft, firm or elastic?

- Wound
  - Is there pain?
  - Measure the wound size.
  - Is there exudate?
  - Are there any signs of infection?

- Protrusion
  - Normal: 0.5–1 cm above skin level.
  - Retracted: Below skin level.
  - Protruded: 2–3 cm above skin level.

Documentation
- Record when the patient passes flatus.
- Record the first time the stoma is active.
- Use either a stool chart or a fluid-balance chart.

CHANGING THE STOMA BAG

Material required
- Dressing trolley
- Dressing pack
- Wipes
- Stoma bag
- Sterile scissors
- Gloves and apron
- Saline and gauze
PROCEDURE

1. Explain the procedure to patient and show them how it is done.
2. Ensure the patient is in a comfortable position and can see what you are doing.
3. Place paper towels under the stoma bag to protect the patient.
4. Wash your hands with soap and water.
5. Put on gloves and an apron.
6. Place a privacy screen around the patient.
7. Carefully open the outlet of the stoma bag and empty the contents into a jug or emesis bag. Discard in the clinical-waste bin.
8. Slowly and gently remove the stoma bag. Peel the adhesive off of the skin.
10. Remove excess faeces with a damp wipe (saline-soaked gauze or wipe).
11. Examine the skin/stoma for pain, ulceration, colour, etc.
12. Wash the skin and stoma site with 0.9% saline and sterile gauze.
13. Dry gently with sterile gauze.
14. Measure the stoma and cut the new bag to size, leaving an extra 3 mm of space to go around the stoma.
15. Apply a new bag around the stoma.
17. Perform hand hygiene.
18. Document in the patient notes the change of bag, output, and condition of the stoma and surrounding skin.

COMPLICATIONS

Monitor the patient for any complications and report to the head nurse and or surgeon any of the below:
- excessive bleeding or bleeding that does not stop
- prolapsed or retracted stoma
- signs of ischemia or necrosis
- wound breakdown and breakdown of skin surrounding the stoma
- high output

MANAGING COMPLICATIONS

<table>
<thead>
<tr>
<th>STOMA/MUCOSA SITE</th>
<th>FINDINGS</th>
<th>CAUSE</th>
<th>MANAGEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ostomy necrosis</td>
<td>Mucous membrane is partially or completely black, hard and dull</td>
<td>Overstretching of the intestinal tract and intestinal mucosa which results in impaired blood flow to blood vessels around the intestine</td>
<td>Observe the colour and texture of the stoma.</td>
</tr>
<tr>
<td>Stoma oedema</td>
<td>Mucosa lacks elasticity and become hard</td>
<td>A narrow abdominal-wall incision tightens the intestinal tract and causes mild circulatory failure</td>
<td>Be careful not to damage the stoma when changing the dressing. Adjust the size of the opening.</td>
</tr>
</tbody>
</table>
**NUTRITION**

Encourage the patient to drink two litres of water per day.

Once the patient can eat, ensure the diet is light and low in fibre.

The patient should avoid the following foods, as they can cause a blockage, excess gas and pain:

- nuts and seeds
- legumes, e.g. beans
- gum
- fizzy drinks
- the skin of fruit/vegetables
- spicy food
- onions, cabbage, garlic
- dairy.

If the patient is having diarrhoea, encourage foods that will thicken output, such as bananas, apple sauce, peanut butter and boiled rice. Report persistent diarrhoea to the doctor.

**MENTAL HEALTH SUPPORT**

The creation of a stoma can be very frightening or distressing for patients and can result in increased stress and anxiety. If possible, refer the patient to the hospital MHPSS support worker. The patient should receive an MHPSS visit both pre- and post-operatively for additional support.

Ostomy patients may be anxious about the following:

- the primary disease and surgery
- changes to their appearance and body image
- managing the stoma and emptying it
- rehabilitation
- self-care
- how they may be affected financially
- the implications the stoma may have on their social and home life
- a vague sense of unease.
DISCHARGE OF PATIENT

- Ensure the patient can confidently change and empty their stoma bag.
- Ensure the patient is fully able to clean the stoma and surrounding skin.
- Provide the patient with supplies for at least two weeks.
- Make sure a follow-up appointment is booked.
- If the patient is unable to return to your facility, ensure that there is an alternate facility accessible to the patient for the necessary outpatient follow-up.

REFERENCES


ICRC NURSING GUIDELINE 16

CARING FOR A PATIENT REQUIRING AN ENEMA BEFORE BOWEL SURGERY

OVERVIEW

Previously, when bowel surgery was performed, the patient would be given preoperative bowel preparation, and their bowels would need to run clear before surgery was undertaken. This was usually uncomfortable, undignified and very stressful for the patient.

Recent studies in The Lancet have found that mechanical bowel preparation does not decrease post-operative site infection rates nor the overall morbidity of post-operative complications. Other studies also found that preoperative bowel preparation offers no benefit in elective colorectal surgery.

Therefore, it has been agreed by ICRC surgeons that bowel preparation is not necessary before all bowel surgery.

An enema should only be given the night before for those patients requiring a low anterior resection, colonoscopy or flexible sigmoidoscopy.

OBJECTIVE

To ensure the nurse is capable of providing high-quality care to a patient requiring an enema before bowel surgery.

PROCEDURE

Before a patient has an anterior resection, colonoscopy or flexible sigmoidoscopy, it is important to explain the procedure to the patient and why they need a preoperative enema. Ensure consent is gained.

Night before surgery

- Ensuring the necessary privacy of the patient, administer the enema per rectum as prescribed. If a fleet enema is not available, use warm sterile water or saline.
- Check and record the patient’s vital signs afterwards.
- Document the enema on a fluid-balance chart.
- If the patient is diabetic, check their blood glucose level.

Ensure patient follows normal fasting times (see Guideline 11, on preoperative care).

Day of surgery

- Check and record the patient’s vital signs and maintain the fluid-balance chart.
- Carry out the preoperative checklist.
- Check for a bowel movement and document in the patient notes.
HOW TO GIVE AN ENEMA

Equipment required
• Gloves
• Apron
• Incontinence pad
• Lubricating jelly
• Fleet enema, or homemade if not available

<table>
<thead>
<tr>
<th>PROCEDURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Obtain consent.</td>
</tr>
<tr>
<td>2. Ensure the patient’s privacy.</td>
</tr>
<tr>
<td>3. Wash your hands and put on a plastic apron and gloves.</td>
</tr>
<tr>
<td>4. Check that the enema is intact and has not expired. Warm the solution to the desired temperature, if possible.</td>
</tr>
<tr>
<td>5. Position the patient on their left side, lying with the knees bent and drawn up.</td>
</tr>
<tr>
<td>6. Place an incontinence pad underneath the patient.</td>
</tr>
<tr>
<td>7. Break the enema seal. Lubricate the tip. Remove any air from the nozzle.</td>
</tr>
<tr>
<td>8. Gently separate the buttocks and locate the anus. Insert the lubricated nozzle into the rectum slowly to a depth of approximately 10 cm (in adults).</td>
</tr>
<tr>
<td>9. Gently expel the contents into the rectum.</td>
</tr>
<tr>
<td>10. Keeping the container compressed, withdraw the container.</td>
</tr>
<tr>
<td>11. Attend to perianal hygiene.</td>
</tr>
<tr>
<td>12. Ask the patient to retain the enema for as long as possible, ideally 15 to 20 minutes.</td>
</tr>
<tr>
<td>13. Provide a commode or bed pan if needed.</td>
</tr>
<tr>
<td>14. Dispose of any waste, remove the apron and gloves and wash your hands.</td>
</tr>
<tr>
<td>15. Ensure the outcome is recorded in the patient notes.</td>
</tr>
</tbody>
</table>

REFERENCES


ICRC NURSING GUIDELINE 17

CARING FOR A PATIENT WITH A URINARY CATHETER

OVERVIEW

A urinary catheter is a specific tube inserted into the bladder via the urethra and usually held in place with an inflated integral balloon. Types of catheters include indwelling (two- or three-way), intermittent or suprapubic.

The introduction of a urinary catheter is an invasive procedure that risks causing an infection or trauma. Therefore, the procedure must be conducted aseptically by a skilled, trained nurse. Catheter-associated urinary-tract infections are a significant problem, and catheters should be removed as soon as they are no longer required.

OBJECTIVE

To ensure the nurse is capable of providing high-quality care to a patient with a urinary catheter.

INDICATIONS

- To drain the bladder prior to, during or after surgery
- To determine residual urine
- To irrigate the bladder
- To bypass an obstruction
- To relieve urinary retention
- To accurately measure urinary output

CONTRAINDICATIONS

When there is suspected urethral injury owing to pelvic trauma, a urethral catheter must not be inserted.

CAUTION

The doctor must insert the catheter if the patient has urethral stricture or a history of recent urinary-tract surgery.

PROCEDURE

Sizing

It is important to choose the correct size of catheter, which should be the smallest size that will allow adequate urinary drainage. A larger-gauge catheter may be needed if there is debris or clots in the urine or for larger adults.
Female: 23–26 cm long, 12–14 French scale (FR)
Male: 40–45 cm long, 14–18 FR
Paediatrics: 30 cm long, 6–10 FR
If urine debris/clots are present: 12–20 FR

**Equipment**
- Dressing pack
- Dressing trolley
- Urinary catheter (appropriate size)
- Sterile gloves
- Sterile lubricant or xylocaine jelly
- 10 ml sterile water
- Normal saline
- 10 ml syringe
- Urinary drainage bag
- Tape to secure catheter bag
- Disposable apron
- Alcohol hand gel

**Inserting a catheter**

<table>
<thead>
<tr>
<th>PROCEDURE FOR MALES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-procedure</strong></td>
</tr>
<tr>
<td>1. Explain the procedure to the patient and get consent.</td>
</tr>
<tr>
<td>2. Place a privacy screen around the bed.</td>
</tr>
<tr>
<td>3. Prepare the trolley, put all materials on the bottom shelf and bring to the bedside.</td>
</tr>
<tr>
<td>4. Assist the patient into the supine position.</td>
</tr>
<tr>
<td>5. Ask the patient to remove their undergarments, and cover them with a towel.</td>
</tr>
<tr>
<td>6. Wash your hands with soap and water or rub them with alcohol-based hand gel.</td>
</tr>
<tr>
<td>7. Put on the apron.</td>
</tr>
<tr>
<td><strong>Procedure</strong></td>
</tr>
<tr>
<td>8. Using aseptic technique, open the dressing pack onto the trolley.</td>
</tr>
<tr>
<td>9. Have buddy nurse pour sterile saline into gallipot (kidney dish), without touching the sterile field.</td>
</tr>
<tr>
<td>10. Open the catheter onto the sterile field.</td>
</tr>
<tr>
<td>11. Clean your hands with alcohol-based hand gel.</td>
</tr>
<tr>
<td>13. Place a sterile towel over the patient’s thighs; do not touch the patient.</td>
</tr>
<tr>
<td>14. Use one hand to lift the penis and retract the foreskin (if not circumcised).</td>
</tr>
<tr>
<td>15. Using your other (sterile) hand, clean the urethral opening with saline-soaked gauze (using forceps).</td>
</tr>
<tr>
<td>17. If available, insert xylocaine gel or lubricating jelly into the urethral opening and hold in place for two to three minutes.</td>
</tr>
<tr>
<td>18. With one hand, hold the penis firmly and raise it; with your sterile hand, insert the catheter 15 to 25 cm, until urine flows out.</td>
</tr>
<tr>
<td>19. Inflate the balloon with 10 ml of sterile water for adults, or 5 ml for children.</td>
</tr>
<tr>
<td>20. Attach the urinary bag to the catheter.</td>
</tr>
<tr>
<td>21. Tape the catheter to the side of the patient’s leg for support.</td>
</tr>
</tbody>
</table>
### Post-procedure

22. Help the patient dress.
23. Measure urine and take a sample, if needed.
24. Dispose of equipment into the clinical-waste bin.
25. Remove your gown and gloves.
26. Apply hand gel.
27. Pack up the trolley and equipment; document in the patient notes the date and time of insertion, the size of catheter used, the batch number and any concerns.

### PROCEDURE FOR FEMALES

#### Pre-procedure

1. Explain the procedure to the patient and get consent.
2. Place a privacy screen around the bed.
3. Prepare the trolley, put all materials on the bottom shelf and bring to the bedside.
4. Assist the patient into the supine position.
5. Ask the patient to remove their undergarments, and cover them with a towel.
6. Wash your hands with soap and water or rub them with alcohol-based hand gel.
7. Put on the apron.

#### Procedure

8. Using gauze-soaked swabs, separate the labia minora so the urethral meatus is visible.
9. Clean around the area with 0.9% saline, in downward strokes.
10. Place lubricating jelly or xylocaine gel on the tip of the catheter.
11. Place the catheter tip into the urethral orifice in an upwards direction; advance 5 to 6 cm.
12. Urine should start to present; then push the catheter in further, to about 6 to 8 cm in total.
13. Inflate the catheter balloon via a syringe with 10 ml of sterile water.
14. Connect the catheter to the urinary bag and secure to the patient's leg with tape for support.

#### Post-procedure

15. Help the patient dress.
16. Measure urine; take a sample if needed.
17. Dispose of equipment into the clinical-waste bin.
18. Remove your gown and gloves.
19. Apply hand gel.
20. Pack up the trolley and equipment; document in the patient notes the date and time of insertion, the size of catheter used, the batch number and any concerns.

**NB** It is easier to have two nurses to perform catheter insertion: one nurse to perform the procedure and the other to assist. The buddy nurse can draw up sterile water with the 10 ml syringe and can also apply lubricating jelly or xylocaine gel to the catheter (using non-touch technique).

### Removing a catheter

It is best to remove the urinary catheter in the morning so that the patient can be monitored for resumption of normal micturition during the day. Encourage the patient to drink two litres of water throughout the day. Advise the patient to tell a nurse when they pass urine.
**PROCEDURE**

1. Explain the procedure to the patient.
2. Set up a trolley with your equipment.
3. Put a privacy screen next to the patient.
4. Wash your hands with soap and water or rub them with alcohol-based hand gel.
5. Put on gloves and an apron.
6. Attach a 10 ml syringe to the end of the catheter balloon port and aspirate the full 10 ml of water.
7. Ask the patient to breathe in and out; when they exhale, gently remove the catheter.
8. Clean around the vagina/penis with saline-soaked gauze.
10. Clean the trolley.
11. Perform hand hygiene.
12. Document in the patient notes the time and date of catheter removal, the amount drained and any concerns.
13. Monitor when the patient passes urine; if there is no micturition within six to eight hours, report this to the doctor.

**NURSING CARE FOR A PATIENT WITH A URINARY CATHETER**

- Encourage an intake of oral fluids – two litres per day.
- Keep an accurate fluid-balance chart.
- Keep the catheter below the level of the bladder.
- Do not leave the catheter bag on the floor.
- Check that the urine is clear.
- Ensure the catheter is patent and draining.
- Ensure the bag is emptied before it reaches maximum capacity.
- Do not disconnect the bag unless necessary; remember to reconnect it.
- Cleanse the meatus daily when washing or showering the patient.
- Check daily with the medical staff to see whether the catheter is still required.

**Suprapubic catheters**

A suprapubic catheter is a catheter that is placed into the bladder through an incision in the abdominal wall, above the pubic bone. It should be inserted by a doctor.

**Indications**

- To manage a neuropathic bladder
- For long-term use, e.g. in spinal cord injuries
- After surgery to the lower urinary tract

**Care**

- Once the incision site has healed, after approximately seven days, clean the site using saline and gauze as per Guideline 2, on wound care.
- Check daily for patency and drainage.
- Monitor for signs of infection at the incision site.
- Maintain a fluid-balance chart.
- Encourage oral fluids – two litres per day.
Intermittent catheters
An intermittent catheter is a urinary catheter that can be inserted and then immediately removed. It is used to empty the bladder and collect a urine sample. Inserting it involves the same technique as for an indwelling urethral catheter.

A patient can be educated to perform this themselves at home if they have a bladder that does not drain.

LINKS
Competency checklist for inserting a urinary catheter

REFERENCES


ICRC NURSING GUIDELINE 18
CARING FOR A PATIENT WITH A TRACHEOSTOMY

OVERVIEW
A tracheostomy is the surgical creation of an opening (stoma) in the trachea at the level of the neck. This secures the airway and provides a direct air passage to the lungs. It is always carried out by a doctor and can be performed as an emergency procedure or in surgery. A tracheostomy can be either temporary or permanent.

A patient with a tracheostomy must be nursed initially in a high-dependency unit and thereafter always close to the nurses’ station for ease of monitoring.

OBJECTIVE
To ensure the nurse is capable of providing high-quality care to a patient with a tracheostomy.

INDICATIONS
- Obstructed airway by either a foreign object or tissue oedema
- Patient needing prolonged artificial ventilation
- Laryngectomy
- Inhalation burns
- Maxillofacial injury
- Upper-airway surgery
- Tetanus
- Patient who cannot maintain their own airway

CONTRAINDICATIONS
- Uncontrollable coagulopathy
- Previous major neck surgery that obscures the anatomy
- Sepsis or a skin infection to the area

NURSING CARE
When looking after a patient with a tracheostomy, the nurse must pay attention to the following:

Observations
- Observe the patient and airway.
- Check the patient’s vital signs regularly.
- Look for any signs of respiratory distress.
- Ensure the airway is open and secure.
**Humidification**
When a tracheostomy is in situ, air is no longer filtered, warmed or humidified by the nose before entry to the lungs, so the nurse must humidify the air. This can be done using:
- a Thermovent (if available) – a disposable plastic device that covers the tracheostomy site and humidifies the air.
- a thin layer of gauze moistened with sterile water and placed over the tracheostomy site. The gauze should be changed when it becomes soiled.

**Hygiene**
- Help the patient wash, as water must not enter the tracheostomy tube.
- Mouth care must be given regularly, at least four times a day.

**Nutrition**
- Depending on the extent of surgery, the patient may also have a nasogastric tube in situ. Please refer to Guideline 23, on caring for patients with nasogastric tubes.
- The patient will require a high-protein, nutritious diet to promote wound healing and a return to good health.
- Patients with a tracheostomy tube may have swallowing problems or be at risk of aspiration.

**Oral feeding**
- An inflated cuff compresses the oesophagus and can make swallowing difficult.
- Oral feeding should ideally be started with a deflated cuff.
- Confirm with the doctor that the patient can tolerate cuff deflation during oral feeding. If the cuff is deflated, ensure this is noted and the cuff reinflated after feeding.

**Wound care**
- The tracheostomy dressing must be changed daily, more frequently if soiled.
- Observe the skin around the stoma for redness and any breakdown.

**Communication**
- The patient will not be able to communicate orally. Ensure the patient and their carers understand this.
- Establish a way to communicate with the patient:
  - If the patient can write, provide a pen and paper, whiteboard, blackboard, etc.
  - If the patient cannot write, be very patient and carefully observe their non-verbal signals.

**TRACHEOSTOMY DRESSING**
Tracheostomy sites should be assessed and cleaned daily, using aseptic technique. Tracheostomy dressing changes always require two trained, skilled nurses. It is important the tracheostomy wound be kept clean and dry in order to prevent any infection. If the dressing becomes wet or soiled, it needs to be changed more frequently.

**Equipment required**
- Dressing pack
- Dressing trolley
- Sterile surgical scissors
- 0.9% saline
- Tracheostomy dressing
- Tape
- Personal protective equipment
**PROCEDURE**

1. Explain the procedure to the patient and get their consent.
2. Put a privacy screen around the bedside.
3. Set up the dressing trolley with your equipment.
4. Wash your hands with soap and water.
5. Put on gloves and an apron.
6. Ensure the patient is sitting up comfortably, well supported by pillows.
7. Ensure the lighting is good.
8. Remove the soiled dressing from around the tube with sterile forceps. One nurse should hold the tube in place while the other nurse changes the dressing.
9. Clean around the stoma with 0.9% saline-soaked gauze, using aseptic technique.
10. Dry with gauze.
11. Repeat as necessary to clean the tracheostomy and ensure all debris/crusts are removed. Observe for signs of infection and bleeding while doing so.
12. Apply new tracheostomy dressing.
13. The second nurse must assist by gently holding the tube in place while the ties are changed.
14. (See picture below.) Measure and cut a piece of tape long enough to go around the patient’s neck twice. Lace the tape through the hole, going around the back of the neck. Tie a square knot on the side of the neck.
15. You should be able to fit two fingers between the neck and tape, with the tape secured at the side of the neck.
16. Dispose of waste and pack up the trolley.
17. Perform hand hygiene.
18. Monitor the patient for changes in breathing.
TRACHEAL SUCTIONING

This should only be done by a fully trained and skilled nurse.

Indications

- Noisy breathing
- Increased or decreased respirations
- Increased coughing
- Decreased oxygen saturation levels
- Increased secretions
- Decreased breath sounds

Equipment required

- Suction and tubing
- Suction catheters
- Personal protective equipment: gloves, goggles and an apron
- Sterile water

**PROCEDURE**

1. Explain the procedure to the patient and alert them to the risk of coughing.
2. Seat the patient upright, supported by another nurse if possible.
3. Perform hand hygiene and put on personal protective equipment.
4. Set the suction pressure to the correct level, usually 100–120 mm Hg.
5. Select the correct size of suction catheter.
6. Open the end of the suction catheter pack and use the pack to attach the catheter to the suction tubing; keep the rest of the catheter in the sterile packet.
7. Remove the catheter from the packet and introduce one-third into the trachy (approximately 10–15 cm).
8. If there is resistance, withdraw 1 cm.
9. Once the tube is inserted, apply suction by placing your thumb over the suction port. Slowly withdraw the remainder of the catheter while applying suction.
10. Do not suction the patient for more than ten seconds.
11. If the patient is oxygen-dependent, reapply oxygen immediately.
12. If further suction is required, repeat the above using new gloves and a new catheter.
13. Wait one to two minutes in between each suction.
14. Repeat until the airway is clear. Only three suction attempts should be done within one episode of suctioning. If the suction procedure does not relieve the problem, inform the doctor.
15. Pack up the equipment and dispose of the waste.
16. Perform hand hygiene.
17. Document the suction procedure in the patient notes.
18. Observe the patient’s vitals for 15 minutes.
REMOVING A TRACHEOSTOMY TUBE

When the tracheostomy tube is no longer required, it is the doctor’s responsibility to perform the removal procedure. When the tracheostomy tube is removed, the stoma site should be covered with an airtight, firm pressure dressing to prevent the formation of a fistula. The site should be monitored for signs of infection.

It is also the doctor’s responsibility to change the tracheostomy tube and/or inner cannula if present. This is not the role of the nurse.

SPECIAL CONSIDERATIONS

The following equipment must remain at the bedside of a patient with a tracheostomy in case of an emergency:

- suction machine fully dedicated to the patient
- suction catheters, 12 French scale (FR) or 14 FR
- tracheal dilators, if available
- spare tracheostomy tubes, one the same size and one smaller
- bag-valve mask
- tape
- personal protective equipment.

Oxygen equipment should be readily available.

LINKS

National Tracheostomy Safety Project tracheostomy training resources

Sample tracheostomy emergency algorithm

Sample tracheostomy bedhead sign

REFERENCES

Royal Perth Hospital, Nursing Practice Standards for Tracheostomy Management. Government of Western Australia Department of Health, Perth, 2019.


ICRC NURSING GUIDELINE 19

CARING FOR A PATIENT WITH A CHEST DRAIN

OVERVIEW

A chest drain is a tube inserted into the thoracic cavity to remove air and/or fluid from the pleural space. This allows for adequate expansion of the lung and the restoration of negative pressure in the thoracic cavity.

If an abnormal amount of fluid or air collects in the pleural space, it can compress the lung, causing it to partially or fully collapse and compromising breathing.

The surgeon inserts a chest drain into the fourth or fifth intercostal space, anterior to the axillary line just above the ribs. This is usually carried out in the operating theatre, but in an emergency it can be performed in the emergency room or on the ward.

Chest drains are usually connected to an underwater seal drainage system, which enables the one-way movement of fluid or air out of the thoracic cavity and into the collection bottle.

Caring for a patient with a chest drain is complex, and proper management is necessary to prevent life-threatening complications.

OBJECTIVE

To ensure the nurse is capable of providing high-quality care to a patient with a chest drain.

INDICATIONS

- Pneumothorax: air in the pleural space
- Haemothorax: blood in the pleural space
- Emphyema: pus in the pleural space
- Pleural effusion: excessive amounts of fluid in the pleural space
- Post-operatively, following thoracic, cardiac, oesophageal or spinal surgery

MANAGEMENT

Management post-insertion

Once the doctor has inserted the chest drain and the patient is back on the ward or in the emergency room, the nurse should do the following:

- Ensure a follow up chest X-ray has been requested (to check the position of the drain and whether the lung has reinflated).
- Check that the drain is well secured.
- Ensure the drain is not clamped and is patent and draining.
- Check and record the nature of the drainage – quantity, colour, etc.
- Monitor for the presence of bubbling or swinging of the liquid in the collection bottle.
• Check that there are no leaks or loose connections.
• Ensure the patient is comfortable and pain-free.

Monitoring
The following should be monitored and checked by the nursing team:

Patient assessment:
• Vital signs (heart rate, blood pressure, respiratory rate, temperature, oxygen saturation levels) should be checked every 15 minutes for the first hour post-insertion, then every hour for four hours, and then every four hours if stable.
• Monitor the patient for signs of respiratory distress, such as dyspnoea, increased restlessness/anxiety, tachycardia or hypotension, oxygen saturation levels under 94%. If such signs are present, call the doctor – the patient may need oxygen therapy.

Pain control:
• Chest drains can be painful, and the patient may require regular analgesia.
• Check the patient’s pain score when checking vital signs, and give analgesia as charted.

Drain insertion site:
• Check that the dressing is clean and intact.
• Check the site for signs of infection, and report them if found.

Chest drain and tubing:
• The drain should always remain below chest level to facilitate drainage.
• The tubing must not be kinked and must have no obstructions.
• Ensure all connections are secure.
• Ensure the drain is secure. Measure and record the length of the drain to ensure it has not moved.
• Ensure the unit is securely positioned either on a stand or hanging on the bed with a proper frame.
• The water seal must be 2 cm at all times so that the end tubing is not exposed to air.

Suction:
• Suction is not always needed and has been linked to an increased risk of tissue trauma and persistent air leaks.
• If the doctor orders suction it can be used to encourage the removal of fluid/air.
• Low-pressure suction is recommended.

Stripping and milking chest drains:
• Milking the tubing to keep the tube patent should be avoided. It is no longer recommended because it increases negative pressure in the intrathoracic cavity and can cause pain, bleeding and trauma.
• If the tubing is occluded or blocked, it should be replaced with new tubing, not milked.
• If there is a blood clot in the chest-drain tubing, it should only be milked carefully by the surgeon.

Drainage:
• The type of drainage (i.e. colour, consistency and amount) should be checked and recorded every four hours.
• This should be recorded on the chest-drain chart.
• Every 24 hours, the amount drained should be marked on the drainage bottle along with the date and time using a permanent marker or other pen.
• If there is a change in colour or consistency and if the drainage looks like pus or is purulent, notify the doctor.
• If output exceeds 200 ml per hour, notify the doctor.
DRAINAGE TYPE | APPEARANCE | CONSISTENCY
--- | --- | ---
Haemoserous | Blood and serum, red/pink | Thin and watery
Haemopurulent | Blood and pus, red/pink | Thick and milky
Purulent | Pus, white, yellow or green | Thick and milky
Serous | Serum, pale yellow or clear | Thin

Patient positioning:
- Encourage the patient to sit upright in bed, well supported by pillows.
- The chest drain must remain lower than the chest.

Physiotherapy:
- It is very important to involve the physiotherapist from the time of insertion.
- Chest physiotherapy will help the lungs expand.
- The physiotherapist will assist the patient with deep breathing exercises, coughing and postural drainage.

Wound management:
- Leave the dressing intact for 24 hours post-insertion.
- After 24 hours, only change the dressing if it is wet/soiled or if there are signs of infection.
- Examine the dressing daily.
- If the dressing needs changing, follow Guideline 2, on wound care: remove the old dressing, cleanse the area with normal saline, dry, apply gauze around the tube, and secure it with a clear/waterproof dressing.
- Unnecessary dressing changes increase the risk of dislodging the drain.

Documentation:
In the patient notes, the nurse should document when drain was inserted, the type of drain, whether there is suction and the general condition of patient.

Every four hours after insertion, the drain chart should be filled out with:
- the colour of drainage
- the total volume of drainage
- the volume drained in the last 24 hours
- the presence of swinging
- the presence and frequency of bubbling
- the suction setting, if suction is on
- an assessment of the insertion site.

Swinging:
- Swinging is the rise and fall of fluid in the tubing, which shows that pressure is changing when the patient inhales and exhales.
- If there is no swinging, the drain may be occluded or may not be in the pleural space.
- No swinging can also mean the lung has re-expanded or suction is being applied.
- Notify the doctor if swinging stops.

Bubbling:
- Bubbling means air is being removed from the pleural space.
- Continuous bubbling could mean there is an air leak in the underwater seal, in the lung or in the drainage system. You must notify the doctor.
- A continuous and significant air leak is a sign of a bronchopleural fistula.
**Equipment at bedside:**
In case accidental dislodging or damage to the drainage bottle occurs, the following should be kept in a tray by the bedside:
- a dressing pack
- gloves
- two tubing clamps.

**Patient transport:**
Do not clamp the tube when transporting or moving patient with a chest drain.
- Ensure the chest drain and tubing are secure and kept below the level of patient’s chest.
- The nurse should escort the patient when they are transported.
- Clamping increases the risk of tension pneumothorax.

**Clamping:**
Drains are only to be clamped (and only by the surgeon) in the following situations:
- if the drainage tubes and underwater seal bottle need to be changed
- when carrying out a clamping trial for a pneumothorax (see below)
- when it is necessary to reconnect a tube that has accidentally disconnected, resulting in the underwater seal being lost.

If the drain is clamped, it should be unclamped by the surgeon as soon as possible.

A clamp that has been applied might be overlooked when the patient is handed over during shift changes of medical personnel. When handing over a patient or after an intervention, always look over the entire length of the tubing to check for an applied clamp.

**Emergency scenario:**
If the drain dislodges:
- call for help
- put on gloves
- pinch the wound edges together
- apply an occlusive dressing
- monitor the patient’s vital signs.

If the tubing disconnects:
- call for help
- clamp the tubing as close to the patient as possible – this is the only time a nurse is permitted to apply a clamp
- reconnect a new system
- inform the doctor
- monitor the patient’s vitals.

**CHANGING DRAINAGE BOTTLE**
The drainage bottle needs changed when it is over three quarters full, when the sterility of the underwater seal drainage system (UWSD) is compromised or when the bottle breaks. The doctor will order the bottle change.

**Equipment needed**
- new UWSD
- dressing pack
PROCEDURE FOR CHANGING THE DRAINAGE BOTTLE

1. Explain the procedure to the patient.
2. Perform hand hygiene.
3. Using aseptic technique, open the new bottle from the packet and place it next to the old bottle.
4. Prepare the new UWSD as per the manufacturer guidelines.
5. Undo the tape around the tubing that connects to the bottle.
6. Clamp the chest drain close to the chest wall with two clamps.
7. Put on gloves.
8. Disconnect the old UWSD and remove it.
9. Connect the new bottle and tubing to the clamped chest tube.
10. Unclamp the chest drain.
11. Ensure the new bottle is securely attached, and secure it in position below chest-level.
12. Dispose of waste in the clinical-waste bin.
13. Remove your gloves and perform hand hygiene.
15. Observe the patient for any respiratory changes.

REMOVING A CHEST DRAIN

A chest drain is only to be removed when ordered by the doctor, and this request must be documented in the patient notes.

The drain should be removed either by two experienced, skilled nurses or by the doctor and one nurse.

Indications for removal:
- There is an absence of bubbling (a sign of lung re-expansion).
- Drainage is minimal.
- Medical assessment has determined that the lung has reinflated.
- There is no evidence of respiratory compromise.
- A chest X-ray (if available) shows lung expansion.

Clamping before removal of chest drain

If the patient had a haemothorax, there is no need to clamp the chest tube before removal.

If the patient had a pneumothorax and there is no more bubbling (i.e. no more signs of a significant air leak), a clamping trial should be done at the surgeon’s request.

Clamping trial:

The surgeon will clamp the chest tube above the bottle for six hours. (This must be done in the morning.) During this time the nurse must closely observe the patient for any signs of respiratory distress, as this could indicate that the patient may have developed a tension pneumothorax. If the patient develops any difficulty breathing, etc., call the surgeon.
After the chest tube has been clamped for six hours, the surgeon should unclamp the drain and check the drain for any bubbling:

- If there is no bubbling, the drain is safe to remove.
- If there is a low quantity of bubbling, the drain is not ready to be removed.
- If there is a lot of bubbling, the patient may have a bronchopleural fistula, and the surgeon will decide whether the patient needs surgery.

**Equipment needed**

- dressing pack
- 0.9% saline
- gloves
- stitch cutter
- tape
- sterile occlusive dressing, e.g. Jelonet
- dry dressing
- personal protective equipment: a gown and goggles

**Before removal:** Check whether the surgeon requires a clamping trial. If so, the clamp will be applied by the surgeon for six hours and then reviewed and removed by the surgeon.

### PROCEDURE FOR REMOVING A CHEST DRAIN

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Give the patient analgesia 30 mins prior if required.</td>
</tr>
<tr>
<td>2.</td>
<td>Explain the procedure to the patient and get their verbal consent.</td>
</tr>
<tr>
<td>3.</td>
<td>Ensure the patient’s privacy.</td>
</tr>
<tr>
<td>4.</td>
<td>Ensure the drain is not on suction.</td>
</tr>
<tr>
<td>5.</td>
<td>Clean and prepare the trolley with the equipment needed.</td>
</tr>
<tr>
<td>6.</td>
<td>Ask the patient to sit upright, well supported by pillows.</td>
</tr>
<tr>
<td>7.</td>
<td>Wash your hands with soap and water.</td>
</tr>
<tr>
<td>8.</td>
<td>Open the dressing pack and dressing material onto trolley, using aseptic technique.</td>
</tr>
<tr>
<td>10.</td>
<td>Remove the current dressing from the insertion site.</td>
</tr>
<tr>
<td>11.</td>
<td>Perform hand hygiene and put on new gloves.</td>
</tr>
<tr>
<td>12.</td>
<td>Using aseptic technique, clean the area with 0.9% saline and dry with gauze.</td>
</tr>
<tr>
<td>13.</td>
<td>Remove the suture securing the drain and ensure the tubing can move freely.</td>
</tr>
<tr>
<td>14.</td>
<td>If there is a purse-string suture, unwind it from the drain in preparation for the assistant nurse to re-secure it once the drain has been removed.</td>
</tr>
<tr>
<td>15.</td>
<td>Instruct the patient to take deep breaths. On the third breath, ask the patient to hold their breath and bear down (the Valsalva manoeuvre).</td>
</tr>
<tr>
<td>16.</td>
<td>If a purse-string suture is present: one nurse pulls the drain out steadily and quickly while holding the skin edges together; as soon as the drain has been removed, the assistant nurse pulls the purse-string suture closed and ties it securely with two knots. Tell the patient to breathe normally.</td>
</tr>
<tr>
<td>17.</td>
<td>If there is no purse-string suture: one nurse removes the drain; as soon as drain is out, the assistant nurse presses the occlusive dressing firmly over the wound to seal it. Tell the patient to breathe normally. For the occlusive dressing, use paraffin gauze covered with gauze and then a waterproof dressing (if available).</td>
</tr>
<tr>
<td>18.</td>
<td>Dispose of waste in the clinical-waste bin.</td>
</tr>
<tr>
<td>19.</td>
<td>Clean the trolley.</td>
</tr>
<tr>
<td>20.</td>
<td>Remove your gloves and other personal protective equipment.</td>
</tr>
</tbody>
</table>
## PROCEDURE FOR REMOVING A CHEST DRAIN

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>21.</td>
<td>Wash your hands with soap and water.</td>
</tr>
<tr>
<td>22.</td>
<td>Document the removal in the patient notes and on the drain chart.</td>
</tr>
<tr>
<td>23.</td>
<td>Monitor the patient’s vital signs and the drain site.</td>
</tr>
<tr>
<td>24.</td>
<td>The dressing should remain intact for 48 hours.</td>
</tr>
<tr>
<td>25.</td>
<td>A chest X-ray should be done 12 to 24 hours post-removal, if available.</td>
</tr>
</tbody>
</table>

### LINKS

- Health wiki: Chest injuries PowerPoint

- Health wiki: Chest drains nursing care PowerPoint

### REFERENCES


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3 For decision on clamping and clamping trials.
ICRC NURSING GUIDELINE 20

CARING FOR A PATIENT WITH A PLASTER OF PARIS CAST

OVERVIEW
Plaster of Paris (POP) is a type of cast material used to immobilize fractures and diseased bones or joints and to correct deformities. It can be used for either a back slab or a complete cast. POP is most useful as an initial method for bone immobilization. It provides support, maintains alignment and allows for some limb swelling.

OBJECTIVE
To ensure the nurse is capable of providing high-quality care to a patient with a POP cast.

INDICATIONS
- Upper limbs: Fractured forearm or hand or fractured humerus with a sling
- Lower limbs: Fractured tibia, ankle or foot

CONTRAINDICATIONS
- Fractured femur

GENERAL PRINCIPLES OF POP APPLICATION
It is usually the surgeon or physiotherapist who will apply the POP cast. The nurse can also apply a POP cast with the appropriate training. The surgeon must always check the cast once it has been applied.
- Never put POP directly on unprotected skin.
- The edges of the cast must be covered and not chafe, or rub on, the skin.
- Apply the POP starting at the fracture site and continuing to the joint near the fracture.
- Apply the POP continuously so that the cast dries as a single, solid unit.
- Clean the skin after application.
- Check the position of limb.
- Areas not to be compressed include the fracture site, nerves, vessels, wounds and bony prominences.

COMPLICATIONS
The following complications can occur for patients with POP casts:
- pressure injuries
- abrasions
- wound infections
- nerve compromise (if the cast is too tight)
- contact dermatitis.
• compartment syndrome
• deep vein thrombosis
• joint stiffness
• soft-tissue swelling.

**NURSING CARE**

In order to prevent the above complications, the following should be done by the nurse:

**Pain management**
- Ensure analgesia is given as required, especially before applying the cast.

**Wound care**
- Check for signs of infection if there is a wound.
- Ensure any skin lesions or wounds are cleansed and repaired or dressed before applying POP.
- If there is a wound that needs a regular change of dressing, ensure a window is cut in the cast around the wound by a physiotherapist or surgeon.
- Ensure there is sufficient padding on bony prominences.

**Mobilization**
- Make sure the cast is the correct size and shape.
- Elevate the affected limb to decrease swelling and pain.
- Encourage the patient to exercise the joints.
- Encourage the patient to move the fingers or toes of the affected limb.
- The patient must not bear weight on the cast until permitted by the surgeon.
- It is usually the role of the physiotherapist to oversee the mobilization of patients with POP casts.

**Care of POP**
- Ensure the cast stays dry.
- The skin under the cast can become itchy – discourage the patient from inserting objects under the cast to relieve itching.
- Check for crumbling or weakening of the cast and report any issues.

**Observations**
- After application, evaluate the neurovascular status of the affected limb every hour for the first four hours.
- Then make neurovascular observations each shift.
- Neurovascular observations include colour, warmth, movement, sensation and distal pulses.

**SPECIAL CONSIDERATIONS**

Tell the surgeon if the patient develops the following:
- severe or increasing pain
- numbness or tingling in the fingers or toes
- bluish or dusky skin
- cracks or breaks in the POP
- wet, crumbling or weakened POP.
LINKS

Health wiki: ICRC physio card

REFERENCES


ICRC NURSING GUIDELINE 21

CARING FOR A PATIENT IN TRACTION

OVERVIEW

Traction is a set of mechanisms used for straightening broken bones or relieving pressure on the skeletal system. It involves the application of a pulling force to a limb while a counter-force pulls in the opposite direction, therefore enabling a fracture to be held in alignment. A patient usually remains in traction for six weeks or more.

Traction is used to:
- restore and maintain straight alignment and length of the bone
- limit movement and reduce the fracture
- minimize pain
- correct or prevent deformity
- decrease oedema/soft tissue injury in the extremities
- prevent muscle spasm
- rest the joints.

There are two main types of traction, skin traction and skeletal traction.

Skin traction: A pulling force is applied to the skin and soft tissues of a limb using adhesive tape or strapping.

Indications
- Infants, children or the elderly, who require a small amount of traction
- Fractured femur in adolescents

For infants under 15 kg, skin traction is applied as so-called gallows traction, where both legs are hung above the patient with 90 degrees of hip flexion.

Skeletal traction: A pin is placed into a bone, and weights are attached to pull the bone into place.

Indications:
- Fractured femur
- Fractured distal humerus around the elbow
- Fractured tibia

OBJECTIVE

To ensure the nurse is capable of providing high-quality care to a patient in traction.

NURSING CARE

Traction care
- The surgeon or physiotherapist will prepare the bed with a Braun frame and the appropriate weights.
- Ensure the end of the bed is elevated on wooden blocks for counter-traction.
- Ensure the bed is on wheels, with a wooden board under the mattress (if available).
Ensure the line of traction pull is maintained.
• Ensure the pulleys do not touch each other.
• Ensure the weights hang freely and do not touch floor.
• Ensure the cords are securely fastened.
• Ensure the ropes run freely on the pulley. If a rope is frayed, replace it.
• The traction weight must not be removed unless ordered by the surgeon.
• Do not alter the position of traction or alignment without asking the surgeon.

Maintain skin integrity
As a patient in traction is on bed rest, they are at risk of developing pressure injuries. Therefore, the nurse should undertake the following:
• Keep the bed sheets wrinkle-free, clean and dry.
• Examine the patient’s skin and especially bony prominences every two to four hours for any breaks or reddened areas.
• Use pressure-relieving devices under bony prominences or areas of particular pressure.
• Ensure the patient is correctly positioned.
• Carry out regular pressure area care every two to four hours.
• Ensure there is an overhead bar (if available) above the bed so that the patient can lift themselves up.
• Document the condition of patient’s skin in the patient notes.

Observations
• Take the patient’s vital signs once daily, or more often if indicated.
• Four times a day, make neurovascular observations: check the affected limb for swelling, numbness, sensation, pain, temperature or change in colour.
• For patients in skin traction, check that the bandage is not too tight.

Prevention of joint stiffness and muscle shortening
• Ensure the limb is correctly positioned.
• Ensure the joints have their full range of movement through passive or active exercise as per the physiotherapist’s orders.

Pin sites
• Refer to Guideline 5, on caring for a patient with an external fixator.
• Monitor the pin site for signs of infection.

Pain management
• Assess the patient’s pain score daily.
• Give analgesia as prescribed.

Nutrition and hygiene
• Ensure the patient has an assisted daily wash. Enlist the help of carers if possible.
• Assist the patient with toileting needs. Provide bed pan or urinal as needed.
• Monitor the patient’s urine output. Ensure the patient does not go into retention or develop a urinary infection.
• Ensure the patient is drinking enough water.
• Ensure the patient’s diet is high in fibre and protein (if available).
• Give regular aperients to prevent constipation.

Activity
As the patient will be on bed rest for many weeks, they may become very bored and/or depressed. Try to prevent this by:
• moving the bed outside each day so that the patient gets fresh air and a change of scenery
• referring the patient to mental-health staff/a counsellor if needed
• arranging activities for them, providing colouring books, movies, books, board games, etc.
• ensuring the patient has visitors (family, friends, community members).

**SPECIAL CONSIDERATIONS**

• Traction patients need regular X-rays: An X-ray must be taken preoperatively and 24 hours post-op. Thereafter, X-rays must be taken once weekly for three weeks and then once monthly until traction is removed, or if any significant changes occur.
• Ensure the patient has regular physiotherapy.
• If there are any signs of change in neurovascular status, report them to the surgeon immediately.
• If you see signs of a pin infection, report them to the surgeon.

**LINKS**

Health wiki: ICRC physio card  

**REFERENCES**


ICRC NURSING GUIDELINE 22

CARING FOR A PATIENT WITH A SPINAL CORD INJURY

OVERVIEW

A spinal cord injury (SCI) is damage to any part of the spinal cord, or the nerves at the end of the spinal canal, that results in a loss of function temporarily or permanently.

An SCI can be classified as complete or incomplete.
- A complete SCI entails loss of all motor and sensory function below the level of the injury.
- An incomplete SCI is a combination of varying degrees of sensory and motor function below the level of the injury.

Fractures of the spine can be either stable or unstable:
- A stable fracture occurs when spinal alignment is intact and there is no risk of further damage. It can usually be treated with a brace and rest.
- An unstable fracture risks resulting in an SCI.

Paralysis is the inability to move limbs and muscles and to feel sensations. Spinal cord injuries result in some degree of paralysis; paralyzed patients are classified as paraplegic, quadriplegic or hemiplegic.
- Paraplegia: Paralysis of both legs with or without bladder/bowel involvement
- Quadriplegia (tetraplegia): Loss of function below the neck with or without respiratory involvement
- Hemiplegia: Paralysis of one side of the body, occurs opposite to side of brain lesion/injury

OBJECTIVE

To ensure the nurse is capable in providing high-quality care to a patient with an SCI and preventing further complications.

CAUSES OF A SCI

- Trauma, e.g. a fall or other accident
- Medical conditions, e.g. spina bifida, polio, myelitis
- Degenerative conditions, e.g. osteoporosis
- Hematoma
- Infections
- Tumours

CLINICAL PRESENTATION

The clinical presentation of paralysis depends on the location of injury. In a complete SCI, the patient will have loss of all movement and sensation below the level of injury/lesion.

Symptoms may include:
- back pain that radiates
- limb weakness
- difficulty walking or moving
- loss of reflexes below the level of injury
- loss of sensation below the level of injury
- cessation of sweating
- sexual impairment
- bladder/bowel dysfunction.

**ASSESSMENT**

Consider an SCI if an injured patient comes to the emergency room or ward complaining of spinal pain, weakness or loss of sensation or has a head injury or decreased consciousness.

The first priority is to assess the injury and stabilize the patient.

A primary survey (ABCDE) and full head-to-toe examination must be carried out by the team, including the doctor, physiotherapist and nurse.

**Airway and cervical–spine protection**

**Airway**
- Assess and secure the airway.
- For a C1 to C4 injury, the patient may need ventilation via intubation or tracheostomy.
- For a C5 to C6 injury, the patient may need respiratory support.

**Cervical spine protection**
- First immobilize the entire spine if an SCI is known or suspected.
- Apply a cervical–spine (neck) collar and keep the patient’s head in a neutral position. Ensure the collar is strapped and taped down, and instruct the patient not to move.
- If you must move the patient, the log-roll method must be carried out by a trained team in order to maintain spinal alignment.
- The patient may need cervical traction or non-invasive traction or splints.
- In cases where the SCI can be reversed or stabilized, early surgery may be indicated.

**Breathing**
- Assess the patient’s breathing.
- Assist the patient with ventilation if required.
- Give oxygen to correct hypoxia if prescribed.

**Circulation**
- Check the patient’s blood pressure and heart rate. Bradycardia and hypotension are common.
- The patient may need intravenous fluids to correct bradycardia and hypotension. Take care not to overload.
- Check for any bleeding and control it as necessary.
- Note: Depending on the level and nature of SCI, the patient may have no pain sensation, meaning that early warning signs of ischaemia, intra-abdominal injury (including haemorrhage), etc. will not be present.

**Disability**
- Perform a neurological exam.
- Assess the patient’s level of consciousness with the Glasgow Coma Scale/AVPU scale (alert, verbal, pain, unresponsive).
- Assess the patient’s pupil response.
- Assess the patient’s motor function.
- Assess the patient’s sensation level (by dermatome).
- This should be carried out hourly in first 24 hours then every four hours thereafter.
Exposure

- Check for other injuries.
- Keep the patient’s temperature within a normal range.
- Hypothermia is common, so this should be corrected.

Organize a CT/X-ray/MRI, depending on what is available.

**MANAGEMENT**

Managing a patient with an SCI can be intensive and often beyond the scope, and therefore the admission criteria, of an ICRC hospital project in a very low-resource environment with compromised infrastructure and few trained staff members.

Initially the patient will need to be nursed in the high-dependency unit or intensive care unit; once stable, they can be managed on the ward. Management should involve the whole team, including close work with the physiotherapist and mental health and psychosocial support staff.

**Hygiene**

- The patient will need a daily wash or bed bath.
- Keep the patient clean and dry.
- Ensure their bed sheets are clean and dry.
- Attend to mouth care.
- Enlisting the supervised assistance of a carer or relative in the above can be very beneficial for the patient and alleviate the workload of the staff.

**Elimination**

- Bladder: Insert a urinary catheter (as per **Guideline 17**). Monitor and record urine output.
- Bowel: Give laxatives and enemas as required. Give the patient a high-fibre diet and encourage fluids.
- Strictly maintain a fluid-balance chart and bowel chart.
- Assist the patient with bedpans/urinals, if needed.
- Provide sanitary pads, if needed.

**Pressure area care**

Patients with SCIs are at a very high risk of developing pressure sores owing to a loss of sensation and an inability to move and reposition themselves.

- Assess skin integrity every two hours during the pressure area turns.
- Provide pressure area care every two hours.
- Put the patient on a pressure-relieving mattress, if available.
- Use pillows and padding where possible.
- Liaise with the physiotherapist.

**Nutrition**

- Check the patient’s swallowing reflex.
- Initially the patient may need a nasogastric tube to decrease the risk of aspiration and vomiting owing to a paralytic ileus.
- Once the doctor determines the patient can eat safely, feeding can be restarted.
- A high-protein, high-calorie, high-fibre diet is required.
- Encourage patient to eat and drink.
- Assist with feeding.
- Involve a caretaker to help the patient.
Prevention of contractures
• The patient will have abnormal muscle tone and a lack of movement, which may result in contractures.
• Involve the physiotherapist to help the patient into a good position.
• The physiotherapist will do passive exercises with the patient.

Moving the patient
• Together with the physiotherapist, use a minimum of two trained nurses to turn the patient.
• Log-roll patient when needed.
• Use a wheelchair once the patient is stable.
• Use bed frames or slide sheets, if available.

Mental health and psychosocial support
• Refer the patient to the counsellor.
• Be aware that depression and denial are common.
• Discuss the patient's injury and outcomes with them and their family.
• Give them time to ask questions. Be supportive, patient and sensitive.
• Provide them with as much information as possible.
• Encourage family and community support.
• Refer them to any community services that may be available.

Rehabilitation
• The patient will need intensive rehabilitation.
• The physiotherapist will refer them to a physical-rehabilitation programme, if available.
• The aim is to get patient from the hospital to their home with adequate support in place.
• Encourage the patient's independence and family involvement in their care.

LINKS
Health wiki: ICRC physio cards related to spinal cord injuries
https://collab.ext.icrc.org/sites/TS_ASSIST/WIKIHealthUnit/Pages/Physiotherapy%20Basic%20Information.aspx

REFERENCES


ICRC NURSING GUIDELINE 23

CARING FOR A PATIENT WITH A NASOGASTRIC TUBE

OVERVIEW

A nasogastric tube (NGT) is a thin, soft plastic tube that is inserted into the nose, passing down the throat and the oesophagus and into the stomach. Inserting the NGT is usually a short procedure performed by an experienced, trained nurse or doctor.

OBJECTIVE

To ensure the nurse is able to safely insert an NGT and provide high-quality care to a patient with an NGT, including administering feeds and medications via an NGT in a safe and appropriate manner.

INDICATIONS

• To administer bolus, intermittent or continuous feeds
• To administer medication
• To decompress the stomach
• To facilitate free drainage and aspiration of stomach contents

CONTRAINDICATIONS

• Oesophageal stricture or varices
• Basal skull fracture
• Facial fracture

INSERTING AN NGT

Equipment
• Dressing pack
• Dressing trolley
• NGT – size 14–16 French scale (FR) for adults
• Drainage bag
• 50 ml syringe
• Tape
• Lubricating jelly
• Gloves and an apron
**Procedure**

<table>
<thead>
<tr>
<th>PRE-PROCEDURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Explain the procedure to the patient and get their consent.</td>
</tr>
<tr>
<td>2. Help the patient to sit upright, and position a pillow behind their head.</td>
</tr>
<tr>
<td>3. Measure the distance from the earlobe to the bridge of the nose to the xiphisternum, then mark the length on the tube indicating the correct length needed to reach the stomach.</td>
</tr>
<tr>
<td>4. Set up the trolley with all of your equipment.</td>
</tr>
<tr>
<td>5. Wash your hands with soap and water.</td>
</tr>
<tr>
<td>6. Put on gloves and an apron.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROCEDURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Check that the patient’s nostrils are clear.</td>
</tr>
<tr>
<td>2. Apply lubricating jelly to the tip of the NGT.</td>
</tr>
<tr>
<td>3. Insert the end of the tube into the nostril and advance it horizontally. If there is resistance, withdraw the tube and try the other nostril.</td>
</tr>
<tr>
<td>4. As the tube passes, ask the patient to try to swallow. It may help to give them sips of water. Ensure they stay calm and still. Offer reassurance that the discomfort is temporary, and encourage them to breathe normally.</td>
</tr>
<tr>
<td>5. Once the tube has been inserted to the marked point, tape it to the side of the patient’s nose to secure it.</td>
</tr>
<tr>
<td>6. Aspirate 10 ml from the NGT.</td>
</tr>
<tr>
<td>7. Attach the tube to a drainage bag.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>POST-PROCEDURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Perform a pH test (if available) or a chest X-ray to check the NGT is in the right position in the stomach.</td>
</tr>
<tr>
<td>2. Dispose of waste.</td>
</tr>
<tr>
<td>3. Remove your gloves.</td>
</tr>
<tr>
<td>4. Pack up the dressing trolley and clean it.</td>
</tr>
<tr>
<td>5. Document the insertion time and NGT size in the patient notes.</td>
</tr>
</tbody>
</table>

**NURSING CARE**

After the insertion of an NGT, it is important to check that it is in the right position. This can be done by X-ray or by checking the pH of the aspirate.

Checking pH:
- Attach a 10 ml syringe to the end of the NGT and withdraw 1 ml of aspirate.
- Apply the aspirate to a pH indicator strip.
- The pH should be between pH 0 and pH 5.

Prior to using an NGT, the nurse must ensure it is in the correct position. Coughing, vomiting and other movement could displace the tube from the correct position.

Check that:
- the tape is secure.
- the position of the marker on the NGT is the same as when the NGT was inserted.
Medication administration

- Unless you are specifically requested to do so by the doctor, do not give medication through the NGT if it is for free drainage or used to aspirate the stomach.
- Always check the position of the NGT before giving medications.
- Flush the NGT with 20 to 50 ml of sterile water before and after use to ensure patency.
- Sit the patient in an upright position and ensure they remain sitting upright for 30 minutes after medications are administered.
- Mix medications with sterile water until they are fully dissolved.
- Never crush enteric-coated medicines.
- Give medication through the NGT slowly. Never force it. If there is a blockage that cannot be alleviated by gentle aspiration, inform the doctor. The tube may need to be changed.

NGT feeding

- Sit the patient upright and ensure they sit upright 30 minutes after the feeding.
- Flush the tube, using a plunger or gravity, with 20 to 50 ml of sterile water before the feeding.
- Fill a 50 ml syringe with the formula.
- Attach the syringe to the end of the NGT and hold it upright. Let the formula drip slowly down through tube.
- Once the feeding is finished, flush the NGT with 50 ml of sterile water.

Removing an NGT

<table>
<thead>
<tr>
<th>PROCEDURE FOR REMOVING AN NGT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Explain the procedure and get the patient’s consent.</td>
</tr>
<tr>
<td>2. Sit the patient upright.</td>
</tr>
<tr>
<td>3. Set up the trolley with your equipment.</td>
</tr>
<tr>
<td>4. Wash your hands with soap and water and put on gloves.</td>
</tr>
<tr>
<td>5. Remove the tape that secures the tube.</td>
</tr>
<tr>
<td>6. Disconnect it from the drainage bag and clamp the end of the tube.</td>
</tr>
<tr>
<td>7. Gently pull the NGT so it slides out of the patient’s nose.</td>
</tr>
<tr>
<td>8. Dispose of waste.</td>
</tr>
<tr>
<td>9. Clean around the patient’s nose and face if needed.</td>
</tr>
<tr>
<td>10. Clean the trolley.</td>
</tr>
<tr>
<td>11. Perform hand hygiene.</td>
</tr>
</tbody>
</table>

REFERENCES


ICRC NURSING GUIDELINE 24

CARING FOR A PATIENT RECEIVING A BLOOD TRANSFUSION

OVERVIEW

A blood transfusion is “the administration of a blood component– or plasma–derived product to a patient”. It can be a lifesaving intervention.

Supplies of blood in the field are usually extremely limited; therefore, all efforts should be made to minimize blood loss. The ICRC most commonly uses whole blood. Sometimes, we have a field hospital blood bank or rely on an external blood bank. In other cases, patients’ family members or so-called walking blood banks donate blood.

Indications for red blood cell transfusion
- Severe anaemia
- Anaemia, for patients with decompensation
- Disseminated intravascular coagulopathy

NB Anaemia can be due to nutritional deficiencies, blood loss, kidney disease, medications or chronic disease.

Indications for plasma transfusion
- Thrombocytopenia
- Platelet function defects

Who should receive transfusions?
The decision to transfuse blood products is a clinical choice made by the doctor based on the compared risks and benefits. The ICRC follows the World Health Organization’s guidelines, which suggest the following:
- A healthy adult with chronic anaemia should receive a transfusion if their haemoglobin level is under 5 g/dl.
- A preop or critically ill patient should receive a transfusion if their haemoglobin level is under 7 g/dl.
- Blood should be cross-matched and made available for all women undergoing Caesarean section and for patients with large burns to be debrided.

OBJECTIVE

To ensure the nurse can provide high–quality care to a patient receiving a blood transfusion by safely delivering blood products to the patient and by recognizing and treating early signs of blood–transfusion reactions.
BLOOD GROUPS

A blood group is an inherited trait, determined by the presence of antigens on the red cell membrane. The main blood group system is the ABO system. The ABO system is defined by the presence of antigen A and/or B on the surface of red blood cells. There are four main blood types: O, A, B and AB. The Rh(D) antigen may or may not be present; red cells with the antigen are Rh(D) positive (denoted by a “+” after their blood type) and those without it are Rh(D) negative (denoted by a “−” sign).

BLOOD COMPATIBILITY

<table>
<thead>
<tr>
<th>BLOOD TYPE</th>
<th>CAN GIVE BLOOD TO</th>
<th>CAN RECEIVE BLOOD FROM</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>A+, AB+</td>
<td>A+, A-, O+, 0-</td>
</tr>
<tr>
<td>O+</td>
<td>O+, A+, B+, AB+</td>
<td>0+, 0-</td>
</tr>
<tr>
<td>B+</td>
<td>B+, AB+</td>
<td>B+, B-, O+, 0-</td>
</tr>
<tr>
<td>AB+</td>
<td>AB+</td>
<td>Everyone</td>
</tr>
<tr>
<td>A−</td>
<td>A+, A−, AB+, AB−</td>
<td>A−, O−</td>
</tr>
<tr>
<td>O−</td>
<td>Everyone</td>
<td>0−</td>
</tr>
<tr>
<td>B−</td>
<td>B+, B−, AB+, AB−</td>
<td>B−, 0−</td>
</tr>
<tr>
<td>AB−</td>
<td>AB+, AB−</td>
<td>AB−, A−, B−, 0−</td>
</tr>
</tbody>
</table>

ADMINISTERING BLOOD

BEFORE TRANSFUSION

1. The doctor orders blood on a blood request form.
2. The blood request form goes to the lab with all the patient’s details, blood group and an EDTA tube for a cross-match.
3. Before being given to a patient, all blood must be tested for compatibility, HIV, hepatitis B and C, syphilis, malaria and Rhesus antibodies.
4. When the blood is ready, the nurse should go to the lab and collect it.
5. Inspect the blood bag for any abnormalities. The tube and bag should be intact with no leaks, clots or damage. The blood product should be right colour – red cells are dark red, and plasma is bright yellow. The expiry date must be checked.
6. Two nurses should perform checks at the patient’s bedside, checking that the patient’s name, date of birth and blood type match the prescription and blood bag. Also check that the number on the bag matches that on the prescription form.
7. Complete baseline observations.
8. Check that patient has a working cannula.
9. Prepare the blood transfusion set. Connect the blood to the giving set, and prime the line using aseptic technique.
10. The infusion rate should be calculated, and blood must be given within 30 minutes of being collected from the lab.
DURING TRANSFUSION

11. Connect the blood to the cannula and start giving the blood.

12. Stay with the patient for the first 15 minutes as they are receiving the blood to watch for any abnormal signs, such as a fever, chills, a rash, flushing, difficulty breathing anxiety.

13. If the patient develops any signs or their condition worsens, stop the blood and call for help.

14. Vital signs must be monitored at the following intervals:
   - five minutes after commencing
   - every 15 minutes for the first hour
   - every 30 minutes thereafter until completion
   - 30 minutes after completion
   - four to six hours later.

15. If the patient’s temperature goes above 38°C or rises by 1 to 2°C, stop the blood and call the doctor.

16. If the patient has a urinary catheter in situ, monitor their hourly urine output. For adults, it should be 30 to 60 ml per hour and for children 1 ml/kg per hour.

Blood transfusion times:
- Adults should be completed in two hours.
- Children should be completed in three hours, usually at a rate of 5 ml/kg/hr for packed red blood cells.
- A transfusion should never go longer than four hours, as this increases the risk of bacterial contamination.

AFTER TRANSFUSION

17. Check the patient’s vital signs 30 minutes after the transfusion is complete and then four to six hours after that.

18. Record the finish time on the transfusion chart.

19. Flush with 100 ml of 0.9% saline.

20. Remove the cross-match label from the blood bag and stick it in the patient notes.

21. Document the blood transfusion and any signs of a reaction in the notes.

22. Return any unused blood to the lab and dispose of waste in the clinical-waste bin.

23. Check the patient’s haemoglobin level the following day and control it.

TRANSFUSION-RELATED COMPLICATIONS

It is important to monitor the patient for any reactions to the transfusion; these are abnormal signs or symptoms that occur during or after the transfusion.

<table>
<thead>
<tr>
<th>REACTION</th>
<th>SIGNS/SYMPTOMS</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute haemolytic reaction</td>
<td>- Agitation</td>
<td>- Stop the blood immediately</td>
</tr>
<tr>
<td></td>
<td>- High fever</td>
<td>- Call the doctor</td>
</tr>
<tr>
<td></td>
<td>- Low blood pressure</td>
<td>- Flush the line with saline</td>
</tr>
<tr>
<td></td>
<td>- Abdominal or chest pain</td>
<td>- Maintain the patient’s airway and give oxygen</td>
</tr>
<tr>
<td></td>
<td>- Flushing, sweating</td>
<td>- Give intravenous fluids if ordered by the doctor</td>
</tr>
<tr>
<td></td>
<td>- Headache</td>
<td>- Return the blood to the lab</td>
</tr>
</tbody>
</table>
### REACTION | SIGNS/SYMPTOMS | ACTION
---|---|---
**Allergic reaction** | - Redness  
- Rash, urticaria, itching  
- Wheezing  
- Facial oedema  
- Difficulty breathing  
- Change in consciousness | - Stop the blood immediately  
- Call the doctor  
- Maintain the patient's airway and give oxygen  
- Prepare to administer adrenaline/steroids/antihistamines and give as per the doctor's orders

**Non-haemolytic transfusion reaction** | - Shivering and fever  
- Headache  
- Back pain  
- Usually starts 30 to 60 minutes after transfusion starts | - Slow or stop the transfusion  
- Call the doctor and follow orders

**Circulatory overload** | - Difficulty breathing  
- Tachycardia  
- Chest crackles  
- Bulging neck veins | - Stop the transfusion  
- Give oxygen  
- Call the doctor  
- Sit the patient upright  
- Prepare for frusemide and give if the doctor orders it

### LINKS

Health wiki: ICRC blood transfusion guidelines and policy

ICRC blood transfusion guidelines, part 1  

ICRC blood transfusion guidelines, part 2  

ICRC blood transfusion policy  

### REFERENCES


ICRC NURSING GUIDELINE 25

CARING FOR AN UNCONSCIOUS PATIENT

OVERVIEW

The state of unconsciousness is when someone is unresponsive to stimuli and appears to be in a sleep-like state. It can last a few seconds or for longer periods. A coma is a state of unconsciousness caused by brain impairment.

Managing an unconscious patient is a medical emergency, requiring rapid assessment, first aid and life-support measures. This can prove challenging in a low-resource, low-skill setting, as unconscious patients require intensive nursing care and numerous resources.

OBJECTIVE

To ensure the nurse is able to provide high-quality care to an unconscious patient.

CAUSES OF DECREASED CONSCIOUSNESS

• Toxins/poisons
• Organ failure
• Metabolic derangement
• Seizures
• Infection
• Head injury/trauma
• Encephalitis
• Cerebrovascular accident: stroke, haemorrhage, etc.

ASSESSMENT

A general assessment should be carried out for a patient with an altered level of consciousness, including:
• taking their vital signs
• thoroughly examining their breathing pattern
• testing blood gases (if available)
• thoroughly examining their skin, looking for bruises, a rash, raccoon eyes, Battle’s sign, jaundice, sweat, etc.
• performing a head-to-toe examination
• obtaining a history.

A neurological examination should also be conducted, assessing the patient’s level of consciousness, motor responses and brainstem reflexes.
**Obtaining a history**
A patient with a decreased level of consciousness probably cannot give a history of what happened, so it is useful to try to obtain a history from a witness, relative or friend. The patient’s personal belongings may also give a clue to their condition – the presence of medication, a medic-alert bracelet, etc.

Ask the witness, relative or friend the following questions:
- What time did the change in consciousness occur?
- Was it sudden or gradual?
- What happened beforehand, e.g. a seizure, collapse, injury?
- Has something like this happened before?
- Has the patient had any recent illness/infections or falls?
- Have there been any recent change in behaviour?
- What do you know about the patient’s medications/allergies/previous medical history?

**Assessing consciousness level**
The patient’s level of consciousness is the most sensitive indicator of neurological deterioration and the most important part of the examination.

**Glasgow Coma Scale**
The Glasgow Coma Scale assesses the consciousness level of patients with head injuries. It looks at three different behaviours: eye opening, verbal response and motor response. Each behaviour is scored according to the stimulus that provokes it. The total score is out of 15.

<table>
<thead>
<tr>
<th><strong>GLASGOW COMA SCALE</strong></th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eye opening</strong></td>
<td></td>
</tr>
<tr>
<td>spontaneously</td>
<td>4</td>
</tr>
<tr>
<td>to speech</td>
<td>3</td>
</tr>
<tr>
<td>to pain</td>
<td>2</td>
</tr>
<tr>
<td>none</td>
<td>1</td>
</tr>
<tr>
<td><strong>Verbal response</strong></td>
<td></td>
</tr>
<tr>
<td>orientated</td>
<td>5</td>
</tr>
<tr>
<td>confused</td>
<td>4</td>
</tr>
<tr>
<td>inappropriate</td>
<td>3</td>
</tr>
<tr>
<td>incomprehensible</td>
<td>2</td>
</tr>
<tr>
<td>none</td>
<td>1</td>
</tr>
<tr>
<td><strong>Motor reponse</strong></td>
<td></td>
</tr>
<tr>
<td>obeys commands</td>
<td>6</td>
</tr>
<tr>
<td>localises to pain</td>
<td>5</td>
</tr>
<tr>
<td>withdraws from pain</td>
<td>4</td>
</tr>
<tr>
<td>flexion to pain</td>
<td>3</td>
</tr>
<tr>
<td>extension to pain</td>
<td>2</td>
</tr>
<tr>
<td>none</td>
<td>1</td>
</tr>
<tr>
<td><strong>Maximum score</strong></td>
<td>15</td>
</tr>
</tbody>
</table>

**GLASGOW COMA SCALE SCORING**

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3–8</td>
<td>Severe brain injury – the patient is comatose and needs intubation</td>
</tr>
<tr>
<td>9–12</td>
<td>Moderate brain injury</td>
</tr>
<tr>
<td>13–14</td>
<td>Mild brain injury</td>
</tr>
<tr>
<td>15</td>
<td>Normal</td>
</tr>
</tbody>
</table>
**AVPU scale**
Using the AVPU scale is another way to assess consciousness. It is simple to use, rapid and effective. It can be used for acutely unwell patients and for children.

It stands for:
- **Alert**: The patient is alert.
- **Voice**: The patient responds to your voice.
- **Pain**: The patient responds to pain.
- **Unresponsive**: The patient is unresponsive.

**Neurological assessment**

**Pupil activity**
The patient’s pupils should also be examined by shining a torch into both eyes at separate times. Check whether the pupils respond to light, whether they are equal or unequal and what size they are.

**Motor function**
Check the patient’s muscle strength, muscle coordination and reflexes, and look for abnormal movements. You can do this by asking them to squeeze your hand with each of their hands and to raise their legs or push with their feet against your hand.

**MANAGEMENT**
Caring for an unconscious patient is challenging and time-consuming. They will need to be nursed in an intensive care unit or high-dependency unit, where a higher level of care and constant nursing supervision can be assured. The nurse should pay particular attention to the following:

**Airway**
- Keep the airway clear.
- The patient might be ventilated or have a tracheostomy.
- Suction may be required. Ensure a machine is available.
- Oxygen will be required. Ensure there is a constant oxygen supply and the appropriate consumables are available.

**Observations**
- Vital signs must be taken regularly – in the acute stage, every 30 minutes then reduced to every one or two hours, depending on the condition of the patient and in consultation with the doctor.
- The patient’s Glasgow Coma Scale score and pupils should be checked regularly.
- Use the high-dependency unit monitoring chart (see “Links”, below).

**Fluid/nutrition**
- The patient must receive nothing by mouth (*nil per os*/NPO). Ensure an NPO sign is clearly displayed by the bed.
- Intravenous fluids will be required. Ensure an adequate supply is provided.
- Nasogastric or percutaneous endoscopic gastronomy (PEG) tube feeding may be required. Check with the doctor.
- Ensure all fluid intake and output is recorded.

**Hygiene**
- The patient will need a daily wash/bed bath.
- The patient’s skin condition must be assessed and the skin kept clean and dry.
- Attend to mouth care every two hours.
- Ensure a urinary catheter is *in situ* and catheter care is provided.
- Maintain a fluid-balance chart.
Monitor the patient’s bowel movements and prevent constipation with aperients.
Keep the patient’s skin moisturized.
Ensure ambient temperature is maintained to prevent hypo-/hyperthermia.

**Pressure-area care**
- Provide pressure-area care every two hours, changing the patient’s position.
- Support their limbs with cushions/pillows.
- Involve the physiotherapist.
- Keep the bed clean and dry.

**Physiotherapy**
- The physiotherapist will need to perform chest and limb physiotherapy to prevent chest infections, contractures and limb wasting.
- Passive exercises should be performed every two hours.
- The patient’s limbs should be massaged.

**Mental health and psychosocial support (MHPSS)**
MHPSS services should be used to support the patient’s family/caretaker.

**LINKS**
High-dependency unit monitoring chart

**REFERENCES**


CARING FOR A PATIENT IN THE HIGH-DEPENDENCY UNIT

OVERVIEW

A critical care area, such as a high-dependency unit (HDU), is one of the most challenging areas to set up and work in in the low-resource setting of ICRC hospital projects.

In a high-income setting, an intensive care unit (ICU) is a specialized department within a hospital that provides intensive treatment, caring for patients with severe and life-threatening injuries or conditions requiring constant and close monitoring. An ICU requires specialized, sophisticated and sensitive equipment, a wide range of drugs, sophisticated diagnostics and laboratory support, and fully trained specialist staff members. Conditions such as trauma, severe sepsis and organ failure can be treated in an ICU.

An HDU also exists in high-income settings and is designed as a step down from the ICU, providing close monitoring, specialized care and supervision to patients who are too sick for a general ward but not sick enough for an ICU. The patients can be stabilized in the HDU until they are ready for the ward.

Currently, it is beyond the resources and scope of the ICRC to provide ICU care owing to the nature of the low-income, low-resource areas where hospital projects are situated. Instead, the ICRC offers HDU care to critically ill patients requiring close monitoring.

Often the ICRC hospital team will set up an HDU of sorts, which can be a stand-alone unit or a closed-off area on the ward or in the recovery or emergency rooms. In order to ensure the correct functioning of the HDU, suction, oxygen and a pulse oximeter are required (at a minimum). The area should be connected to a generator to ensure 24-hour electricity supply and should also have easy access to running water and a waste-management area. The ICRC does not promote the use of ventilators in the HDU owing to the lack both of infrastructure to support mechanical ventilators and of trained staff, including biomedical engineers, to ensure their safe use.

Those who may need to be admitted to the HDU include patients with the following:
- major/complex surgery
- major trauma
- complicated maxillofacial cases
- tracheostomies in the first 24 hours
- cerebral malaria
- severe sepsis
- major burns
- severe head injuries.

OBJECTIVE

To ensure the nurse is able to provide high-quality nursing care to critically ill patients in the HDU.
ASSESSMENT

In order to set up an HDU it is important to make a needs-based assessment of the staff and the environment.

Assess the staff
It is important to establish what staff you are working with and who is suitable for and capable of working in an HDU. Ask the following:
• What training or experience do the staff have?
• What is their motivation level?
• Are they tired?
• What are their skills or capabilities?
• What shifts do they work?
• Is there a doctor available?
• Are there enough staff members to have a ratio of one nurse and one nursing assistant to every six patients (depending on acuity)?

Assess the environment
• What are the local capabilities and expectations?
• Is there a constant power source?
• Is there running water?
• Is there oxygen and related equipment?
• Is there suction?
• Is the equipment working?
• Is the area safe?

Assess the culture
• What is acceptable in the culture of the hospital?
• Is ventilation accepted?
• Is end–of–life care accepted?
• Are resuscitation and/or intubation accepted?

Transfer capabilities
• Can the patient be transferred elsewhere?
• What means are available for transferring the patient?
• What is the quality of care at the referral facility?
• How far away is the referral facility?
• Has the family consented to transferring the patient?
• Who will bear the costs of transferring the patient?

MANAGEMENT

Patients in the HDU will require excellent nursing care. There should be one nurse and one nursing assistant caring for every six patients, and a doctor should be available when required. HDU care requires the following:

Close monitoring
• Frequent vital signs and Glasgow Coma Scale score
• Constant pulse oximetry
• Regular primary surveys (ABCDE) to monitor any change in the patient’s condition
  – A – Is the airway open, safe and managed by the patient independently or do you need to assist the airway?
  – B – Is breathing effective, are the oxygen saturation levels acceptable, or does the patient need oxygen support?
– C – Check the patient’s pulse, blood pressure, colour, capillary refill, and bleeding/dressing. If any is abnormal, treat the patient and call for help.
– D – How conscious is the patient? Check their AVPU (Alert, Voice, Pain, Unresponsive) or Glasgow Coma Scale score.
– E – Monitor the patient’s temperature, and keep them warm.

**Pain management**
- Regularly take the patient’s pain score.
- Give regular analgesia.

**Fluid balance**
When a patient is critically ill, it is important to know their hydration status – what is going in and coming out. If they are unwell they may need fluid supplements. It is important to ensure the patient does not become hypovolaemic or overloaded. Hence, a fluid-balance chart needs to be kept strictly.

The chart should include:
- what is eaten/drunk
- intravenous fluids or medications given
- any blood loss
- vomiting
- faeces/stoma output
- nasogastric tube loss
- urine output, including colour and volume.

Fluid loss in the body can cause damage to the heart and kidneys, and if these organs do not function properly the patient can become even more unwell.

**Documentation**
It is absolutely essential to document the condition of the patient regularly in order to rapidly identify any deterioration. Documentation in the HDU should be done using the HDU chart (see “Links”, below).

The following need to be accurately documented:
- vital signs
- fluid balance
- change in condition
- all nursing actions
- when the patient is reviewed by the doctor.

Remember: If it has not been documented, it was not done.

**Setting up an HDU**
In order to set up an HDU, the following is necessary:
- one to two bays or a small area to accommodate two full bed spaces with enough room to fully move around the beds
- wheeled beds that can be elevated
- a cupboard to store equipment and supplies
- a working area/desk for the nurse
- an area to prepare drugs and procedures
- a washbasin to wash hands
- an oxygen concentrator and a spare
- oxygen masks, tubing, a bag-valve mask, etc.
- nebulizers
- a suction machine and suction equipment
- a tracheostomy tray
• a chest drain tray
• vital sign equipment – pulse oximeter, sphygmomanometer
• drip stands
• a HemoCue
• vascular-access equipment
• all documentation charts.

MANAGING ABCDE

A. Airway obstruction
An airway obstruction is a blockage in any part of the airway which may partially or fully prevent air getting to the lungs. It can occur at the mouth, throat, larynx, trachea or bronchus.

Causes
• Tongue
• Soft tissue oedema
• Facial/cervical injury
• Foreign body
• Secretions
• Bronchospasm
• Inhalation of gas

Examination
Is the patient able to speak? Cough? Breathe?

Look in the patient’s mouth for blood, secretions or loose teeth and look for respirations, movement of the chest and the colour of the patient.

Listen for stridor, inspirations, expirations or snoring.

Feel for movement of the chest or warm air going in or out of the nose or mouth.

Management
Is the patient conscious or rousable? Is their breathing effective? Can you sit them up and get them to breathe deeply? If not:
• check their mouth
• prepare an airway adjunct
• prepare to perform a head-tilt/chin-lift
• suction the oral cavity.

If the patient’s Glasgow Coma Scale score is reduced, you may need to safeguard the airway by doing one or more of the following:
• performing a head-tilt/chin-lift.
• putting the patient in the recovery position.
• ventilating the patient with a bag-valve mask.
• intubating the patient (the doctor must decide).
• inserting a nasopharyngeal airway (NPA). Do not use an NPA if the patient has facial or head trauma; NPAs are only for conscious patients with a pharyngeal reflex. Put the patient’s head in a neutral position, and insert the NPA into the nostril back and downwards.
• inserting an oropharyngeal airway (OPA). Use an OPA if the patient is unconscious with no pharyngeal reflex. Insert the OPA upside down and turn it at the back of the mouth to move the tongue aside. If the patient starts talking or swallowing, you can remove it.
B. Ineffective breathing
If breathing problems are not identified early it can lead to exhaustion, inadequate ventilation and poor perfusion.

Causes for deterioration in breathing
- Trauma to the cervical spine
- Nerve damage
- Malnourishment
- Fractured ribs or sternum
- Lung disease
- Pneumo- or haemothorax

Management
- Give oxygen.
- Insert a chest drain if needed.
- Give the patient mechanical ventilation with a bag-valve mask if needed.
- Reposition the patient to maximize their breathing.
- Give medications to help open the patient's airway.

Circulatory problems
Causes
- Arrhythmia caused by abnormal electrolyte levels
- Acute coronary syndrome
- Severe anaemia
- Hypovolaemia
- Heart failure
- Trauma
- Septic shock

Management
- Treat the cause.
- Stop blood loss.
- Insert two large-bore cannulas.
- Give intravenous fluids or blood as prescribed.
- Take blood for haemoglobin levels and cross-match.
- Do an electrocardiogram if available.
- Apply a cardiac monitor if available.
- Give cardiac medications as prescribed, if available.

Decreased consciousness
Causes
- Hypoxia
- Hypercapnia (increased carbon dioxide)
- Cerebral hypoperfusion
- Sedation
- Low blood sugar
- Trauma
- Alcohol
- Stroke

Management
- Protect the patient’s airway.
- Treat the cause.
- Check the patient’s blood sugar.
• Check the patient’s history – medications, allergies and previous medical history.
• Nurse the patient in the recovery position if appropriate.

**Exposure (temperature control)**
• Expose the patient and examine them from head to toe.
• Ensure the patient’s temperature is kept normal.
• Give the patient blankets.
• Ensure the patient is clean and dry.
• Remove wet or soaked clothes or linens.

**SPECIAL CONSIDERATIONS**

For an unconscious patient in the HDU please refer to [Guideline 25](#), on unconscious patients.

**LINKS**

HDU competency skills checklist

HDU monitoring chart

**REFERENCES**


ICRC NURSING GUIDELINE 27
WHEN THERE IS NO PHYSIOTHERAPIST

OVERVIEW
The presence of a physiotherapist within the ICRC surgical team is essential for a patient’s good recovery. It is very important that surgery be accompanied by physiotherapy and immediate rehabilitation. If it is not, this can lead to post-operative complications and decreased functioning for the patient. Occasionally, however, owing to a variety of constraints beyond the control of the hospital team, a physiotherapist is not always present.

In the absence of physiotherapy services, the surgical team must be able to offer basic physiotherapy services to prevent unnecessary complications and promote good rehabilitation.

Physiotherapy after surgery provides a number of benefits, leading to a faster recovery and improved physical and mental health for the patient. Physiotherapy:
- encourages and promotes healing
- helps the patient retain muscle and prevents muscle wasting
- minimizes scar tissue
- helps the patient regain mobility and strength.

OBJECTIVE
To ensure the nurse is able to provide high-quality basic physiotherapy activities when there is no physiotherapist available in order to prevent further disability and promote good recovery.

MANAGEMENT
Below is a basic table covering the various activities a nurse should be able to carry out in order to prevent complications. Refer to the ICRC physiotherapy cards for further details (see “Links”, below).

<table>
<thead>
<tr>
<th>OUTCOME</th>
<th>ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preventing chest infections</td>
<td>- Encourage early mobilization.</td>
</tr>
<tr>
<td></td>
<td>- Encourage deep-breathing exercises and use of incentive spirometer.</td>
</tr>
<tr>
<td></td>
<td>- Sit patient up when they are able.</td>
</tr>
<tr>
<td>Preventing pressure injuries</td>
<td>- Ensure regular repositioning and use of pillows or limb-elevation devices.</td>
</tr>
<tr>
<td>Preventing oedema</td>
<td>- Ensure distal bandaging is done in crossed layers.</td>
</tr>
<tr>
<td></td>
<td>- Elevate the affected limb.</td>
</tr>
<tr>
<td></td>
<td>- Encourage muscle activity.</td>
</tr>
<tr>
<td>Managing patients in traction</td>
<td>- Ensure the limb is correctly aligned on the frame.</td>
</tr>
<tr>
<td>Treating patients in plaster of Paris casts</td>
<td>- Ensure the cast is not too tight.</td>
</tr>
<tr>
<td></td>
<td>- Keep the affected body part elevated as required.</td>
</tr>
<tr>
<td>Treating patients with amputations</td>
<td>- Position the stump correctly.</td>
</tr>
<tr>
<td></td>
<td>- Use figure-eight bandaging.</td>
</tr>
<tr>
<td>OUTCOME</td>
<td>ACTIVITIES</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Treating patients with spinal cord injuries</td>
<td>- Reposition the patient every two hours.</td>
</tr>
<tr>
<td></td>
<td>- Start transfers as soon as the patient is stable.</td>
</tr>
<tr>
<td>Mobilizing patients</td>
<td>- Encourage early mobilization and assist with crutches, wheelchair, etc.</td>
</tr>
</tbody>
</table>

**SPECIAL CONSIDERATIONS**

These interventions should only be carried out under prescription and under the supervision of the head nurse or head surgeon.

**LINKS**

The ICRC’s physiotherapy team in Geneva has created general cards that a nurse can use when a physiotherapy service is not available. Follow the cards according to the type of intervention or the patient’s condition.

The cards include guidelines on:
- prevention of joint stiffness and muscle shortening
- early mobilization of patients (transfers, weight-bearing status and mobility)
- prevention of muscle weakness
- prevention of vascular problems and management of respiratory disorders
- skin care and prevention of pressure sores
- hygiene and practical advice
- patients in traction
- patients with plaster of Paris casts or external fixation
- patients with amputations
- patients with spinal cord injuries
- patients with burns and skin grafts.

Health wiki: ICRC physiotherapy cards
[https://collab.ext.icrc.org/sites/TS_ASSIST/WIKIHealthUnit/Pages/Physiotherapy%20Basic%20Information.aspx](https://collab.ext.icrc.org/sites/TS_ASSIST/WIKIHealthUnit/Pages/Physiotherapy%20Basic%20Information.aspx)

**REFERENCES**


ICRC NURSING GUIDELINE 28
CARING FOR A PATIENT WITH DEHYDRATION

OVERVIEW

Dehydration occurs when the body loses more fluid than it takes in. This loss of fluid can then impair the body’s function.

Note: This guideline is not applicable in cases of severe malnutrition. For treating patients with severe malnutrition, please refer to the Médecins Sans Frontières Clinical Guidelines, page 37 onwards.

OBJECTIVE

To ensure the nurse is able to provide high-quality care to dehydrated patients by assessing their hydration status and preventing or treating dehydration.

CAUSES OF DEHYDRATION

• Diarrhoea
• Blood loss
• Sweating
• Fevers
• Hot climate
• Vomiting
• Insufficient oral intake
• Reduced fluid intake due to preoperative fasting
• Increased micturition, for example due to diabetes or diuretics

SIGNS AND SYMPTOMS OF DEHYDRATION

General
• Dry mucus membranes
• Poor skin turgor
• Weakness
• Increased thirst
• Decreased urine output and concentrated urine
• Low blood pressure
• Increased heart rate
• Headache
• Muscle cramps
• Dizziness/fainting
Paediatrics
- Drowsiness
- Crying with no tears
- Dry tongue/mouth
- Fever
- Dry nappies
- Sunken eyes
- Sunken fontanelle
- Irritability

**EVALUATING DEHYDRATION**

To determine whether a patient is dehydrated, measure the patient’s urine output; if output is low, the patient is dehydrated. Note, however, that their level of dehydration cannot be measured using this method.

<table>
<thead>
<tr>
<th>AGE</th>
<th>ADEQUATE URINE OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1 yr</td>
<td>2 ml/kg/hr</td>
</tr>
<tr>
<td>1–10 yr</td>
<td>1 ml/kg/hr</td>
</tr>
<tr>
<td>&gt; 10 yr</td>
<td>0.5–1 ml/kg/hr</td>
</tr>
</tbody>
</table>

If blood gas analysis is available: Use the following values to determine the patient’s level of dehydration.

<table>
<thead>
<tr>
<th>DEHYDRATION</th>
<th>VENOUS PH</th>
<th>BICARBONATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild (approx. 5%)</td>
<td>7.2–7.29</td>
<td>&lt; 15 mmol/l</td>
</tr>
<tr>
<td>Moderate (approx. 7%)</td>
<td>7.1–7.19</td>
<td>&lt; 10 mmol/l</td>
</tr>
<tr>
<td>Severe (approx. 10%)</td>
<td>&lt; 7.1</td>
<td>&lt; 5 mmol/l</td>
</tr>
</tbody>
</table>

If blood gas analysis is not available: Use the following table to determine the patient’s level of dehydration.

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>NO DEHYDRATION</th>
<th>SOME DEHYDRATION</th>
<th>SEVERE DEHYDRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mental status</td>
<td>Normal, awake</td>
<td>Agitated, irritable</td>
<td>Lethargic, unconscious</td>
</tr>
<tr>
<td>Mouth and tongue</td>
<td>Moist</td>
<td>Dry</td>
<td>Very dry</td>
</tr>
<tr>
<td>Eyes</td>
<td>Normal</td>
<td>Sunken</td>
<td>Very sunken and dry</td>
</tr>
<tr>
<td>Thirst</td>
<td>Drinks normally</td>
<td>Thirsty, drinks eagerly</td>
<td>Unable to drink</td>
</tr>
<tr>
<td>Skin turgor</td>
<td>Goes back quickly</td>
<td>Goes back slowly</td>
<td>Goes back very slowly, mottled</td>
</tr>
<tr>
<td>Vital signs</td>
<td>Normal</td>
<td>Blood pressure low, pulse palpable (may be rapid), increased respiratory rate</td>
<td>Blood pressure very low, pulse difficult to palpate (weak or absent), deep and acidotic breathing</td>
</tr>
<tr>
<td>Capillary refill</td>
<td>Normal</td>
<td>Delayed &gt; 2 sec</td>
<td>Very delayed &gt; 3 sec</td>
</tr>
<tr>
<td>Urine output</td>
<td>Normal</td>
<td>Dark in colour, small output</td>
<td>Very dark, low output</td>
</tr>
<tr>
<td>Treatment (see below)</td>
<td>Normal fluid intake</td>
<td>Oral rehydration salts and close monitoring</td>
<td>Intravenous treatment and oral rehydration salts</td>
</tr>
</tbody>
</table>
TREATMENT

The aim of treatment is to stop fluid loss and replace lost fluids, bringing the patient to a state of homeostasis.

Treatment of mild to moderate dehydration is the administration of oral rehydration salts (ORS) and close monitoring of vital signs until the symptoms are alleviated.

Treatment of severe dehydration is the administration of prescribed intravenous fluids and ORS together with close monitoring of vital signs and maintenance of a fluid-balance chart.

The WHO recommends that ORS be made of 75 mEq of sodium per litre and 75 mmol of glucose.

Note: In adult patients with cholera, simple diarrhea or uncomplicated acute malnutrition, standard ORS should be used. In complicated acute malnutrition and all other situations, a tailored protocol needs to be defined by the doctor or nutritionist.

Adults

- Some dehydration (mild to moderate, or 5 to 10% dehydration): Give 2.2 to 4 l of ORS in the first four hours. Then reassess in six hours.
- Severe dehydration (10% dehydration or above): Insert an intravenous (IV) cannula and give fluid stat, 30 ml/kg in the first 30 minutes. Then give 70 ml/kg of Ringer’s lactate over three hours. Use Ringer’s lactate or Ringer’s lactate with 5% dextrose. If both are unavailable, normal saline can be used.

Children

- Some dehydration (mild to moderate, or 5 to 10% dehydration): The child will need ORS supplementation in a supervised setting, using the amounts below as recommended by the WHO. If the child’s weight is known, you can give 100 ml/kg of ORS in the first four hours. The child must be observed closely until all signs of dehydration are gone and the child has passed urine.

<table>
<thead>
<tr>
<th>AGE OF CHILD</th>
<th>WEIGHT</th>
<th>AMOUNT OF ORS TO GIVE IN THE FIRST FOUR HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 4 mo.</td>
<td>&lt; 5 kg</td>
<td>200–400 ml</td>
</tr>
<tr>
<td>4–11 mo.</td>
<td>5–8 kg</td>
<td>400–600 ml</td>
</tr>
<tr>
<td>12–23 mo.</td>
<td>8–11 kg</td>
<td>600–800 ml</td>
</tr>
<tr>
<td>2–4 yr</td>
<td>11–16 kg</td>
<td>800–1200 ml</td>
</tr>
<tr>
<td>5–14 yr</td>
<td>16–30 kg</td>
<td>1200–2200 ml</td>
</tr>
<tr>
<td>&gt; 14 yr</td>
<td>&gt; 30 kg</td>
<td>2200–4400 ml</td>
</tr>
</tbody>
</table>

- Severe dehydration (10% dehydration or above): The child will need to be hospitalized and given IV fluids (see box below).

The WHO recommends the below for children with severe dehydration in a resource-limited setting:
- Once the child can drink, give them ORS.
- Revaluate the child after a few hours, and treat them according to their hydration status.
- If the child has seizures, you can give a rapid bolus with glucose.
- If the child has severe malnutrition, only give IV fluids if they are in overt shock (see the WHO guidelines in “Links”, below). There is risk of causing fluid overload in severely malnourished children when you give IV hydration.

---

In adults, standard ORS could cause heart failure owing to the excess of sodium relative to potassium. ReSoMal (rehydration solution for malnutrition) is recommended in such cases because it has a high potassium content relative to sodium and is thus thought to be safer.
### IV FLUIDS FOR SEVERELY DEHYDRATED CHILDREN

1. Give a bolus of isotonic crystalloid: 30 ml/kg over 30 min. Give over 1 hr for children under one year old.
   
   You can use Ringer's lactate or normal saline.

2. Follow by giving 70 ml/kg of isotonic crystalloid over 2.5 hr. Give over 5 hr for children under one year old.

3. If there is no improvement in 1 to 2 hr, increase the speed.

4. Once finished, repeat if the child’s radial pulse is weak or absent.

### NURSING CARE

- If the patient has diarrhoea, send a stool specimen.
- For babies, encourage the mother to continue breastfeeding.
- Give ORS in accordance with the advice above.
- Encourage oral fluids as much as possible.
- Monitor the patient’s vital signs.
- Give intravenous fluids as prescribed.
- Give antipyretics as prescribed.
- Check the patient’s abdomen for distension or pain.
- Observe the patient for improvement.
- Keep the patient’s temperature normal.
- Keep the patient clean and dry.

### LINKS


[https://apps.who.int/iris/bitstream/handle/10665/43209/9241593180.pdf?sequence=1&isAllowed=y](https://apps.who.int/iris/bitstream/handle/10665/43209/9241593180.pdf?sequence=1&isAllowed=y)

### REFERENCES


ICRC NURSING GUIDELINE 29
CARING FOR A PATIENT WITH DIARRHOEA

OVERVIEW

The World Health Organization (WHO) defines diarrhoea as “the passage of three or more loose or watery stools within 24 hours”. Diarrhoeal disease is the second leading cause of death in children under five years old. The WHO estimates that diarrhoea results in 1.5 to 2 million deaths per year.

Diarrhoea can be classified as acute or chronic.

Acute diarrhoea is the most common. It can be self-limiting and usually lasts under two weeks.

Chronic diarrhoea lasts longer than two to four weeks and is more complex in origin.

Diarrhoeal disease is spread from person to person, as a result of poor hygiene, and also through contaminated food or water.

OBJECTIVES

To ensure the nurse is able to provide high-quality care to patients with diarrhoeal diseases by reducing the severity and duration of diarrhoea.

To ensure the nurse is able to treat and prevent dehydration and any ensuing nutritional deficiencies.

DESCRIPTION

Risk factors

- Overcrowding, e.g. in refugee camps or unplanned urban settlements
- Poor sanitation and water sources
- Limited access to water and sanitary facilities
- Contaminated food and water
- HIV infection

Causes of acute diarrhoea

- Food allergy
- Diet, e.g. a very high-fibre diet
- Antibiotics
- Alcohol
- Viruses – Rotavirus or Norovirus
- Bacteria – Escheria coli, Shigella, Campylobacter jejuni, Vibrio cholerae, Salmonella
- Intestinal protozoan infection – Giardia, Entamoeba histolytica, Cryptosporidium

Rotavirus is the leading cause of gastroenteritis in children under two years old.

E. coli is the leading cause of gastroenteritis in older children and adults.
Causes of chronic diarrhoea

- Disease of the large or small intestine, e.g. Crohn’s disease or ulcerative colitis
- Pancreatic disease
- Endocrine disorders
- Intestine surgery

Classification

The WHO identifies four clinical types of diarrhoea:

1. Acute watery diarrhoea (including cholera)
   - Can last several hours or days.
   - Dangers include dehydration and weight loss.
   - Most commonly caused by E. coli.
   - Other causes include cholera, *Norovirus, Campylobacter*, non-typhoid *Salmonella*.

2. Acute bloody diarrhoea (also called “dysentery” or “invasive diarrhoea”)
   - Lasts under 14 days.
   - Often accompanied by a fever.
   - Can cause damage to the intestines, sepsis, malnutrition and dehydration.
   - Most commonly caused by *Shigella*.
   - Other causes include *Campylobacter jejuni*, invasive or enterohemorrhagic E. coli, *Entamoeba hystolytica*, *Schistosoma mansoni*.

3. Persistent diarrhoea
   - Characterized by loose, watery or bloody stools persisting more than 14 days.
   - Can cause malnutrition, dehydration and serious infection.

4. Diarrhoea with severe malnutrition (marasmus or kwashiorkor)
   - Dangers include severe systemic infection, dehydration, heart failure and vitamin and mineral deficiencies.

Epidemics

An epidemic is a rapid spread of infectious disease to a large number of people in a given population, usually in a short time.

*Shigella dysenteriae* and *Vibrio cholera* cause epidemic diarrhoea:

- Shigella infection (*shigellosis*) is characterized by small, liquid stools with visible blood, with or without mucus. It is accompanied by abdominal cramps, tenesmus, fever and anorexia.
- Cholera is characterized by a large volume of watery diarrhoea that looks like rice water and sometimes has flecks of mucus. It usually presents suddenly, with vomiting and abdominal cramps.

Please refer to the “Links” section below for guidance from the WHO and Médecins Sans Frontières (MSF) on managing cholera and dysentery outbreaks.

**ASSESSMENT**

In order to provide high-quality care to patients with diarrhoea, it is important to perform a thorough assessment and try to identify the cause of the diarrhoea and what type it is. It is essential to ensure good documentation in the patient notes and the use of fluid-balance and stool charts.

The following should be assessed:

- the history of onset, frequency and duration
- the consistency, colour and form of stools
- whether there is any blood or mucus in the stools
- associated symptoms, e.g. vomiting, nausea, fever, weight loss and tiredness
- lifestyle changes, e.g. stress or travel
• diet history and fluid intake
• what medications the patient takes – laxatives, antibiotics, etc.
• previous medical and surgical history – note any bowel or abdominal surgery
• any comorbidities.

The following examinations and tests should be done:
• physical rectal exam by the doctor – checking for haemorrhoids, blood, rectal prolapse, etc.
• assessment of the patient’s hydration status – whether they are dehydrated and at what level (early, moderate or severe)
• assessment of the patient’s nutritional status – whether they are malnourished
• stool sample for cultures/microscopy (if available) – checking for bacteria, fungi, parasites or viral pathogens
• bloods if possible – full blood count (FBC), urea and electrolytes (U&E), liver function (LFT), erythrocyte sedimentation rate (ESR), c-reactive protein (CRP).

**MANAGEMENT**

Diarrhoea should be considered infectious until proven otherwise. It is important to reduce the spread of disease to others by adhering to universal precautions. These include wearing gloves and an apron, disposing of waste immediately and isolating the patient.

If it is possible to determine the cause of the diarrhoea, this should be carried out without delay and the cause treated. If an underlying condition is causing the diarrhoea, this must be treated. (Underlying conditions can include respiratory or ear infections.)

The main goal of managing a patient with diarrhoea is to prevent further complications and treat their symptoms. The nurse should aim to correct fluid and electrolyte imbalances (which will prevent and treat dehydration), to ensure appropriate nutrition is received and to manage any comorbidities.

Care for a patient with diarrhoea should include the following:

**Preventing and treating dehydration**

Diarrhoea often results in dehydration. When a person has diarrhoea, water and electrolytes (sodium, potassium, bicarbonate and chloride) are lost through their stool and through sweat, vomit, urine and breathing. If the lost electrolytes are not adequately replaced, dehydration occurs.

Fluid management will depend on the amount of fluid lost and whether the patient is diagnosed as moderately or severely dehydrated.

To determine whether a patient is dehydrated and to treat dehydration, consult Guideline 28, on treating dehydration.

If the patient is not dehydrated, prevent dehydration by giving oral rehydration salts (ORS) after each loose stool, using the amounts below. The WHO recommends that ORS be made of 75 mEq of sodium per litre and 75 mmol of glucose.

<table>
<thead>
<tr>
<th>AGE</th>
<th>AMOUNT OF ORS TO GIVE AFTER EACH LOOSE STOOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 2 yr</td>
<td>50–100 ml</td>
</tr>
<tr>
<td>2–10 yr</td>
<td>100–200 ml</td>
</tr>
<tr>
<td>&gt; 10 yr</td>
<td>200–250 ml</td>
</tr>
</tbody>
</table>
Children without dehydration can be managed at home.

**Nutrition**
Diarrhoea in children is often linked with malnutrition. A child who presents with diarrhoea should also be assessed for malnutrition. When a child dies from diarrhoea, it is usually because they are severely malnourished. Diarrhoea results in a decreased intake of food and therefore a decrease in nutrient absorption, which results in weight loss and a failure to grow.

**Malnourishment**
- Continue to give nutrient-rich food during and after episodes of diarrhoea.
- Encourage the mother to breastfeed and give the child ReSoMal (rehydration solution for malnutrition) in between feedings.

**No signs of malnourishment**
- Encourage sufficient feeding/eating during and after episodes of diarrhoea.
- Encourage regular fluid intake and ORS.
- Encourage breastfeeding or formula as well as ORS.

The diet for all patients with diarrhoea should be high in energy and nutrition. It is best to give them six smaller meals throughout the day.

**Vitamin supplements**

**Zinc**
Zinc supplements have been shown to reduce the severity and duration of diarrhoea. The WHO recommends zinc be given for ten days to children under five with diarrhoea.

*Dose*
- Children under six months: 10 mg once a day for ten days
- Children between six months and five years: 20 mg once a day for ten days

**Vitamin A**
Children who have diarrhoea in a low-resource environment are at high risk of vitamin A deficiency. The WHO recommends a high dose of vitamin A for these children.

**Medications**
The WHO advises that antimicrobials should not be used in a low-resource environment. It can be impossible to test for the cause of diarrhoea and the sensitivity of the pathogen, which makes choosing an effective antimicrobial drug difficult.

Antibiotics should not be given for watery diarrhoea.

However, antibiotics can be helpful for:
- bloody diarrhoea (shigellosis)
- suspected cholera with severe dehydration
- bacterial diarrhoea where the patient is symptomatic with systemic involvement.

For antimicrobial guidelines, refer to the MSF *Clinical Guidelines* (2019), pages 85 to 89, which recommends the treatment for cholera, giardia, shigellosis and amoebiasis. See “Links”, below.

Do not give antidiarrhoeal medications or anti-emetics.
NURSING CARE

The nurse should also ensure the following:

Privacy
• Maintain the privacy and dignity of the patient.
• Put them in a private room or area.
• Give them a clean gown.
• Provide air freshener or deodorant.
• Provide pads if needed.

Skin integrity
• The skin can break down after multiple episodes of diarrhoea, especially around perianal area.
• Ensure the area is cleansed with warm water after each stool.
• Avoid the use of soap, as that can irritate the area.
• Do not use talcum powder on the area.
• Dry by gently patting the area. Do not rub.
• You can use a barrier cram, but only apply a small amount.

Documentation
• Ensure fluid-balance and stool charts are maintained.

If the patient is infectious, put a sign up and write it in the patient notes.

PREVENTION

Aim to prevent the spread of organisms from one person to the next and within the community. Measures to achieve this include:
• ensuring handwashing with soap
• ensuring access to safe drinking water
• ensuring the correct disposal of human waste
• ensuring food is handled and managed safely
• controlling flies
• encouraging breastfeeding of babies and young children
• ensuring latrines are ten metres away and downhill from drinking water
• giving the rotavirus vaccine for infants aged six weeks to 24 months in countries with a high incidence of rotavirus diarrhoea
• giving cholera vaccines in endemic areas.

LINKS

MSF guidelines for cholera epidemics

MSF Clinical Guidelines (2019) – for antimicrobial treatment of diarrhoeal diseases

https://apps.who.int/iris/bitstream/handle/10665/43209/9241593180.pdf?sequence=1&isAllowed=y
WHO guidelines for dysentery (shigellosis) (2016)
https://www.who.int/selection_medicines/committees/expert/21/applications/s6_paed_antibiotics_appendix5_dysentery.pdf

WHO Cholera Outbreak: Assessing the Outbreak Response and Improving Preparedness (2010)
https://www.who.int/cholera/publications/OutbreakAssessment/en/

REFERENCES


CARING FOR A PATIENT WITH MALARIA

OVERVIEW
Malaria is a disease caused by an infection with a protozoan parasite of a species of Plasmodium. It is transmitted from human to human by the bite of a female Anopheles mosquito. There are five species of Plasmodium that affect humans: P. falciparum, P. vivax, P. ovale, P. malariae and P. knowlesi. P. falciparum and P. vivax are the most serious.

The World Health Organization (WHO) estimates that in 2017 there were 219 million cases of malaria in 87 countries and over 435,000 deaths. Most cases and deaths occur in sub-Saharan Africa. Other regions affected by malaria include South-East Asia, the East Mediterranean, the Western Pacific and the Americas.

OBJECTIVE
To ensure the nurse is competent in detecting malaria and providing high-quality care to patients with both uncomplicated and complicated malaria.

DESCRIPTION
Diagnosis/Laboratory
Always consider malaria in a patient who lives in or comes from an endemic area and has a fever or history of fever in the last 48 hours.

The WHO recommends any cases of suspected malaria be confirmed before treatment using a diagnostic test, either microscopy or a rapid diagnostic test (RDT), unless testing is unavailable. If no diagnostic testing is available and malaria is suspected, treatment should be commenced.

- Microscopy: Thin and thick blood films can be done, which allow parasites to be detected, species determined and the percentage parasitaemia measured (the percentage of red blood cells with parasites present). A trained laboratory worker should be able to perform this test. If the blood film is negative, repeat the test in six hours and then a further 12 hours later.
- RDT: These detect antigens of the malaria parasite present in the blood. They can remain positive for days or weeks following an infection with malaria and effective treatment. The nurse can perform this test on the ward.

Haemoglobin levels should be checked in all patients with severe malaria.

Blood glucose levels should also be checked in patients with severe malaria.

Incubation period
The incubation period can be anywhere from one week to one year. For P. falciparum, incubation is usually nine to 14 days; for P. vivax, 12 to 18 days; and for P. ovale 18 to 40 days.
**Risk factors**
Groups at a higher risk of getting malaria and suffering complications include:
- infants
- children under five years old
- pregnant women
- the elderly
- people with HIV/AIDS
- travellers
- non-immune migrants.

**SIGNS AND SYMPTOMS OF MALARIA**

The first signs of malaria are a fever, headache and chills.

<table>
<thead>
<tr>
<th>UNCOMPlicated MALARIA</th>
<th>COMPlIcAtED/SeVERE MALARIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>The patient has signs of malaria and a positive diagnostic test but no signs of complicated malaria.</td>
<td>This occurs when an infection is complicated by organ failure or abnormalities.</td>
</tr>
<tr>
<td>The symptoms of uncomplicated malaria are below.</td>
<td>It has same the symptoms as uncomplicated malaria plus one or more of the symptoms below.</td>
</tr>
<tr>
<td>- Fever</td>
<td>- Impaired consciousness: delirium, coma, confusion</td>
</tr>
<tr>
<td>- Shivering and chills</td>
<td>- Convulsions</td>
</tr>
<tr>
<td>- Nausea</td>
<td>- Respiratory distress</td>
</tr>
<tr>
<td>- Sweating</td>
<td>- Circulatory shock</td>
</tr>
<tr>
<td>- Headache</td>
<td>- Jaundice</td>
</tr>
<tr>
<td>- Anorexia</td>
<td>- High fever (&gt; 40 degrees)</td>
</tr>
<tr>
<td>- Muscle aches and malaise</td>
<td>- Severe anaemia (haemoglobin level &lt; 5)</td>
</tr>
<tr>
<td>- Anaemia (in children and pregnant women)</td>
<td>- Hypoglycaemia (&lt; 3.3 mmol)</td>
</tr>
<tr>
<td>- Children: abdominal pain, diarrhoea, vomiting</td>
<td>- Acute renal failure: urine output &lt; 12 ml/kg/day (child) or &lt; 400 ml/day (adult)</td>
</tr>
<tr>
<td></td>
<td>- Oliguria, anuria, haemoglobinuria</td>
</tr>
<tr>
<td></td>
<td>- Abnormal bleeding</td>
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<tr>
<td></td>
<td>- Pulmonary oedema</td>
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<tr>
<td></td>
<td>- Hypotension</td>
</tr>
<tr>
<td></td>
<td>- Severe vomiting and diarrhoea</td>
</tr>
<tr>
<td></td>
<td>- Hyperparasitaemia: &gt; 5% of red blood cells infected</td>
</tr>
</tbody>
</table>

**MANAGEMENT**

Treat malaria according to the Médecins Sans Frontières (MSF) Clinical Guidelines, page 138 (see “Links”, below).

The WHO suggests treating for *P. falciparum* if the species of parasite is not known.

Refer to the MSF Clinical Guidelines for malaria treatment in pregnant women and the use of quinine.

**TREATMENT OF UNCOMPlicated MALARIA**

*P. VIVAX, P. OVALE, P. MALARIAE AND P. KNOWLESI (ADULTS AND CHILDREN)*

Give chloroquine orally.
- Day 1: 10 mg/base/kg
- Day 2: 10 mg/base/kg
- Day 3: 5 mg/base/kg

Resistance to chloroquine is present in Papua New Guinea, the Solomon Islands, Myanmar, India, Indonesia and East Timor, so follow national guidelines. In areas of chloroquine resistance, treatment is usually done with an artemisinin-based combination therapy (ACT) (MSF, 2019).
TREATMENT OF UNCOMPLICATED MALARIA

P. FALCIPARUM

Give ACT orally for three days. If the patient is vomiting, give it intravenously or intramuscularly.

For doses, see the table on page 140 of the MSF Clinical Guidelines.

TREATMENT OF COMPLICATED MALARIA

The patient should be hospitalized and monitored closely.

The drug of choice is Artesunate, either IV or intramuscular (IM). If that is not available, give IM Artemeter.

If the patient is in shock, give IV Artesunate or IV quinine.

Artesunate: Give as a slow IV injection (3 to 5 min). If that is not possible, give as a slow IM injection into the anterior thigh.

Dose
- Children < 20 kg: 3 mg/kg/dose
- Children > 20 kg and adults: 2.4 mg/kg/dose

Frequency
- One dose initially
- One dose 12 hours after the initial dose
- One dose 24 hours after the initial dose
- Then one dose daily until the patient can tolerate oral ACT (see below)

Artemeter: Give as an IM injection into the anterior thigh.

Dose and frequency
Children and adults: Give 3.2 mg/kg on admission, then 1.6 mg/kg once a day until the patient can take oral ACT (see below).

Additional oral treatment: If the duration of IV/IM treatment was less than seven days, treat for three days with oral ACT.

If the duration of IV/IM treatment was seven days (the maximum recommended duration), do not give additional oral treatment. (MSF 2019)

NURSING CARE

Providing high-quality care to the patient and treating their symptoms includes the following:

Fever reduction
- Give paracetamol when the patient’s temperature exceeds 38.5°C and they look unwell.
- Apply cooling measures: use a tepid sponge, give the patient a cool wash, turn on a fan, remove tight and warm clothes and remove heavy blankets.

Hydration
- Ensure the patient is hydrated.
- Encourage oral fluids.
- If the patient cannot drink, start IV fluids as per prescription.
- Treat any existing dehydration.
- Take care not to cause fluid overload – monitor the patient’s fluid balance.

Elimination
- Assist the patient to the toilet if needed.
- Insert a urinary catheter if cerebral malaria or renal failure is diagnosed.
- Maintain a fluid-balance chart for patients with complicated malaria.
- Monitor the patient’s urine output.
**Treating convulsions**
If convulsions occur, inform the doctor and give the prescribed anti-convulsant. Remain with the patient and protect them from harm during the convulsion.

**Dose**
- Child: 0.5 mg/kg via buccal administration or per rectum, or 0.3 mg/kg IV if the doctor is present to maintain the patient’s airway
- Adult: 10 mg via buccal administration, per rectum or IV

Repeat after ten minutes if the initial dose does not work. Monitor and record the patient’s vital signs and neurological status.

**Treating severe anaemia**
If patient has severe anaemia, they will need a blood transfusion. Check with the anaesthetist and follow Guideline 24, on blood transfusions.

**Treating hypoglycaemia**
If the patient can swallow, give the following:
- child – either one teaspoon sugar in water, juice or milk, or 10 ml/kg of 10% glucose
- adult – 15 to 20 g sugar (three to four cubes) or a sugary drink.

If the patient is unconscious or cannot swallow, give the following:
- child: 5 ml/kg of 10% glucose as a slow IV (3 to 5 min)
- adult: 1 ml/kg of 50% glucose as a slow IV (3 to 5 min).

Check the patient’s blood sugar levels after 15 minutes; if blood sugar is still under 3.3 mmol, give another dose.

If an IV cannula cannot be inserted, put granulated sugar under the patient’s tongue to dissolve.

**Treating unconscious patients**
See Guideline 25.

**PREVENTION**
- Cover your body with long clothes at night.
- Wear insect repellent (e.g. DEET).
- Put fly screens on windows and doors.
- Sleep under a mosquito net.
- Take malaria prophylaxis (for travellers and those working in areas with malaria).
- Spray insecticide on clothing and bedding.
- Burn mosquito coils when sitting outside.
- Prevent water stagnation.
- Spray insecticides around areas with water.

**SPECIAL CONSIDERATIONS**
The ICRC Anaesthesia Handbook advises the following in relation to surgery and malaria:
- Elective surgery: Malaria should be treated prior to surgery.
- Emergency setting: Surgery should be delayed if possible, as the risks are much higher in patients suffering from severe complicated malaria.
LINKS

MSF Clinical Guidelines, pp. 137–144

WHO Guidelines for the Treatment of Malaria
https://www.who.int/malaria/publications/atoz/9789241549127/en/

REFERENCES


Tetanus is a severe infection that affects the central nervous system. It is caused by Clostridium tetani; a bacterium that is found in soil and human and animal waste. The bacterium enters the body via a wound or burn. Clostridium tetani produces a toxin which then attacks the central nervous system.

Tetanus spores are found in the environment, mainly in soil but also on rusty surfaces such as nails, needles and barbed wire. The spores are resistant to heat and most antiseptics and can survive for years.

**OBJECTIVES**

To ensure the nurse is able to provide post-exposure prophylaxis for tetanus.

To ensure the nurse can detect the signs and symptoms of tetanus and provide high-quality care to patients with tetanus.

**DESCRIPTION**

**Diagnosis**
There are no lab tests available to diagnose tetanus. Diagnosis is made on clinical signs.

**Incubation period**
Usually three to 21 days. The shorter the incubation period (the time since contamination), the more severe the disease.

**Risk factors**
Tetanus is not a contagious disease.

It occurs in those who are not fully vaccinated or do not receive proper post-exposure prophylaxis and where there are unclean birth practices.

Higher-risk wounds are those contaminated with soil or foreign materials, such as:
- puncture wounds
- umbilical cord stumps
- crush injuries
- severe burns
- bites
- weapon wounds.

**Signs and symptoms**
- Pain/stiffness in the jaw (usually the first symptom, which then spreads to the rest of the body)
- Lockjaw, i.e. trismus (causes difficulty in opening the mouth and swallowing)
- Fixed smile, i.e. risus sardonicus
• Headaches and photophobia
• Seizures
• Fever and profuse sweating
• Muscle spasms in the back, abdomen and limbs
• Arching of the back (due to hyperextension of the spine)
• Sudden painful spasms (caused by sensory or physical stimuli)
• Spasms of the thoracic and laryngeal cavity (can cause respiratory distress, aspiration and choking)

Neonates:
• Usually symptoms appear three to 14 days after birth.
• The first symptoms are irritability and difficulty suckling (as their lips become rigid).
• Then rigidity spreads and muscle spasms occur.

**MANAGEMENT**

Good nursing and medical care can reduce mortality by 50%. However intensive nursing care is needed and patient will need to be hospitalized for two to four weeks.

Aspects of care include:

**Airway management**
• Monitor the patient with a pulse oximeter.
• Suction any secretions from the patient’s mouth.
• If there is persistent laryngospasm, the patient may need a tracheostomy.

**Pain control**
• Give regular and adequate analgesia as prescribed.
• Morphine may be necessary; check with the anaesthetist.

**Antibiotics**
Antibiotics are not routinely prescribed but will be decided on based on the patient’s condition. The doctor may prescribe metronidazole, erythromycin or penicillin G.

**Controlling muscle spasms**
• Nurse the patient in a quiet, dark, cool room.
• Reduce stimulation as much as possible, including noise, touch, light, drafts and movements.
• Blindfold neonates’ eyes with a cloth bandage.
• Ensure the patient is adequately sedated; see the ICRC *Anaesthesia Handbook* page 162 for a guide on sedation, including the table below.

<table>
<thead>
<tr>
<th>SEDATION FOR PATIENTS WITH TETANUS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diazepam</strong></td>
</tr>
<tr>
<td>- Adults: 5 mg intravenously, titrated to control spasms without over-sedation</td>
</tr>
<tr>
<td>- Children: 0.2 mg/kg intravenously every two hours, titrated</td>
</tr>
<tr>
<td><strong>Magnesium</strong></td>
</tr>
<tr>
<td>Initial dose:</td>
</tr>
<tr>
<td>- Adults: 5 g slow intravenous loading dose</td>
</tr>
<tr>
<td>- Children: 75 mg/kg intravenous loading dose</td>
</tr>
</tbody>
</table>

Then give 1 to 2 g per hour until spasms are under control (both adults and children).
**Nutrition/Hydration**
- Insert an intravenous cannula.
- Give intravenous fluids, as charted to keep the patient hydrated.
- Maintain a fluid-balance chart.
- Ensure the patient receives a high-calorie diet, as they will be fatigued.
- If the patient cannot eat, insert a nasogastric tube and give feedings/medication through this (only if so instructed by the doctor and if spasms are controlled).
- Neonates should be given expressed breastmilk every three hours.

**Wound management**
- Clean, disinfect and dress the wound.
- Extensive debridement of wounds may be needed to remove all contaminated and necrotic tissue.
- For cord infections, do not debride or excise; instead treat for sepsis/bacteria. See the Médecins Sans Frontières (MSF) Clinical Guidelines, page 180.

**Positioning**
- Try to disturb the patient as little as possible, as movement stimulates spasms. Ensure the patient is adequately supported with pillows to prevent harm.
- However, if the patient sedated and immobile, provide gentle pressure-area care every three to four hours.

**Immunization**
ICRC follows the World Health Organization’s guidelines for tetanus immunization. All patients must be considered unimmunized.

All patients are to receive a full course of tetanus toxoid 0.5 ml, one dose on arrival at the hospital and subsequent doses as per the timeline below.
- TV1: On arrival
- TV2: Four weeks after TV1
- TV3: Six months to one year after TV2, or following pregnancy
- TV4: One to five years after TV3, or following pregnancy
- TV5: One to ten years after TV4, or following pregnancy

**Dirty wounds**
Human tetanus immunoglobulin (TIG) is also given to patients with dirty wounds; see the ICRC’s protocol below.

<table>
<thead>
<tr>
<th>FOR ADULTS AND CHILDREN (UP TO 21 DAYS AFTER INJURY)</th>
<th>TIG (INTRAMUSCULAR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wounded less than 12 hours ago</td>
<td>250 IU*</td>
</tr>
<tr>
<td>Wounded more than 12 hours ago</td>
<td>500 IU</td>
</tr>
</tbody>
</table>

* Increase to 500 IU if either of the following conditions apply: the presence (or risk of) heavy contamination or a patient weighing more than 90 kg.

See the ICRC’s tetanus protocol in “Links”, below.
PREVENTION

The World Health Organization (2018) recommends:
- clean delivery and cord care during childbirth.
- appropriate wound care during surgery and dental procedures.
- immunization with tetanus toxoid–containing vaccines as part of routine immunization programmes and antenatal care. See the MSF Clinical Guidelines, page 181, for a routine vaccination schedule.

LINKS

MSF Clinical Guidelines (2019)

REFERENCES


ANNEX

ICRC tetanus protocol
Tetanus Prophylaxis
Assume all patients are non-immunized

1. All wounds should be cleaned and debrided promptly and appropriately.

2. Dirty wounds, adults and children, up to 21 days after the injury:

<table>
<thead>
<tr>
<th>FOR ADULT AND CHILDREN</th>
<th>TETANUS HUMAN IMMUNOGLOBULIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wound &lt; 12 h</td>
<td>250 UI IM*</td>
</tr>
<tr>
<td>Wound &gt; 12 h</td>
<td>500 UI IM</td>
</tr>
</tbody>
</table>

* Increase to 500 units if any of the following conditions apply: presence, or risk of, heavy contamination; or if patient weights more than 90 kg.

3. All patients: Tetanus immunization by Tetanus Toxoid 0.5 ml Intramuscular.

*Immunoglobulin and the vaccine should be administered at two different sites with separate syringes.*

4. Complete vaccination up to 5 doses (TT or Td):
   - TV1: on arrival
   - TV2: 4 weeks
   - TV3: 6 months to 1 year or following pregnancy
- TV4: 1 to 5 years after TV3 or following pregnancy
- TV5: 1 to 10 years after TV4 or following pregnancy

References

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https://apps.who.int/iris/bitstream/handle/10665/254582/WER9206.pdf?sequence=1

https://www.who.int/hac/techguidance/tools/guidelines_prevention_and_management_wound_infection.pdf

Electronic medicines compendium
https://www.medicines.org.uk/emc/product/5547/smpc

MSF
https://medicalguidelines.msf.org/viewport/CG/english/tetanus-16689919.html#Footnote5
ICRC NURSING GUIDELINE 32
CARING FOR A PATIENT WITH TYPHOID

OVERVIEW

Enteric fevers include typhoid and paratyphoid. These are systemic infections caused by the bacterium 
Salmonella. Typhoid fever is caused by Salmonella typhi, and paratyphoid is caused by Salmonella paratyphi. The 
Salmonella bacteria enter the body through the gastrointestinal tract and then spread through the bloodstream.

The bacteria are found in the faeces and urine of infected individuals and are spread through the ingestion of 
contaminated food or water and via direct contact (e.g. with dirty hands).

In 2018 the World Health Organization (WHO) estimated that 128,000 to 161,000 people die from typhoid 
each year.

OBJECTIVE

To ensure the nurse is able to provide high-quality care to a patient with typhoid and takes effective measures 
to prevent the spread of the disease.

DESCRIPTION

Diagnosis
Diagnosis of typhoid can be made by:
- blood cultures in the first week of infection
- stool cultures in the second week.

A low white-cell count is also indicative of typhoid.

Incubation period
- Typhoid: usually eight to 14 days but can be as early as three days and as late as 60 days
- Paratyphoid: one to ten days

At-risk populations
- People who do not have access to safe water and adequate sanitary facilities
- People living in over-crowded, poor communities
- Children

Transmission
Typhoid can be spread in the following ways:
- contaminated food or water supplies after floods or natural disasters
- food outlets that practice poor hygiene
- seafood from a water source contaminated with infected faeces or urine
- use of toilets contaminated with the bacteria
- raw fruits and vegetables that have been fertilized with human waste
- contaminated milk
- flies.
SIGNS AND SYMPTOMS

Typhoid can range from mild to severe. Paratyphoid has the same symptoms as typhoid but is usually of shorter duration and less severe.

Symptoms include:
• a prolonged fever. This is the most common sign. The fever is either mild (38–39°C) or high (40–41°C). The fever slowly increases in the first week, remains the same in the second week and slowly decreases in the third to fourth week.
• rose coloured spots usually visible on the trunk. These are a very specific sign. They present as raised, rose-red spots which fade on pressure. They can be difficult to see on dark skin.
• a headache.
• muscle aches.
• abdominal pain.
• nausea and vomiting.
• fatigue and weakness.
• chills.
• a non-productive cough.
• splenomegaly.
• relative bradycardia.

During the first week, the patient will have general symptoms. In the second week the patient becomes worse, and the signs and symptoms may be severe. During the third week, general and abdominal symptoms become even worse, and the bowel may perforate, or the intestinal wall may haemorrhage. If the patient does not die, they usually recover after the fourth week.

Complications
Typhoid can lead to:
• intestinal perforation
• gastrointestinal haemorrhage
• peritonitis
• myocarditis
• coma
• encephalitis
• pregnancy complications, e.g. miscarriage, preterm delivery and intrauterine death.

MANAGEMENT

Nursing care
The nurse should do the following when caring for a patient with typhoid:
• Isolate the patient.
• Keep them under close observation.
• Ensure good hand hygiene is practiced by the patient, the staff and any visitors.
• Treat the fever. Give paracetamol and use cooling measures if the patient’s temperature exceeds 38.5°C and they look unwell. Note: the fever will not come down until four to five days after antibiotics are started.
• Ensure the patient is hydrated. Encourage oral fluids; if the patient cannot tolerate oral fluids, commence intravenous fluids.
• Uncomplicated patients can be managed at home with oral antibiotics for seven days.
• Complicated/severe cases (patients with pregnancies, neurological disturbances or altered general states) need to be admitted for close monitoring and intravenous antibiotics.
**Antibiotic treatment**


Always check if there is antibiotic resistance in the region, and, if possible, test the typhoid strain for resistance and treat accordingly.

### UNCOMPLICATED TYPhOID

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dosage</th>
</tr>
</thead>
</table>
| Ciprofloxacin (oral)  | - Children: 15 mg/kg twice a day for seven days  
                        - Adults: 500 mg twice a day for seven days  
                        - Maximum dose: 1 g per day |
| Azithromycin (oral)   | - Children: 10–20 mg/kg once a day for seven days  
                        - Adults: 1 g once a day for seven days  
                        - Maximum dose: 1 g per day |
| Cefixime (oral)       | - Children: 10 mg/kg twice a day for seven days  
                        - Adults: 200 mg twice a day for seven days  
                        - Maximum dose: 400 mg per day |

NB If resistant to all three drugs, refer to the MSF guidelines for more information.

### COMPLICATED/SEVERE TYPhOID

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dosage</th>
</tr>
</thead>
</table>
| Ceftriaxone (intravenous) | - Children: 50–100 mg/kg once a day  
                        - Adults: 2 g one to two times a day  
                        - Maximum dose: 4 g per day |

Duration of treatment depends on the severity of the illness and the clinical response.

Give dexamethasone when there is central nervous system involvement (e.g. delirium, hallucinations, altered mental state).

When there is resistance to ceftriaxone, refer to the MSF guidelines.

<table>
<thead>
<tr>
<th>Drug</th>
<th>Dosage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dexamethasone (intravenous)</td>
<td>Give 3 mg/kg stat, then give 1 mg/kg every six hours for two days (eight doses).</td>
</tr>
</tbody>
</table>

For treatment during pregnancy and breastfeeding, refer to the MSF guidelines.

For typhoid perforation, see the ICRC’s protocol in “Links”, below.

### PREVENTION

- Wash your hands thoroughly with soap and water after toileting and before meals.
- Avoid eating uncooked foods.
- Wash or peel fruits and vegetables before eating.
- Drink bottled or boiled water.
- Avoid ice.
- Avoid raw milk.
- Ensure hot food is cooked properly and eaten while hot.
- Avoid eating out at places with poor hygiene.
- Ensure access to a safe water supply and adequate sanitary facilities.
- Disinfect areas where there are faeces with 2% chlorine.
**Vaccination**

Paratyphoid: no vaccine is available.

Typhoid:
- An oral or injectable vaccine is available for travellers, people moving to endemic areas and lab workers. The vaccine only lasts three years and a booster is needed.
- In 2017, the WHO released a typhoid conjugate vaccine for countries with the highest burden of typhoid. This vaccine is safe for those over six months of age. A single dose of 0.5 ml is to be given at nine months and then a catch-up dose at 15 years.

**SPECIAL CONSIDERATIONS**

- Patients with typhoid may present with an acute abdomen secondary to a bowel perforation.
- Consider typhoid in any severely septic patient with a bowel perforation.
- Even after symptoms of typhoid resolve, a person can still remain a carrier of typhoid and spread the bacteria to others. Therefore, they must take the full course of antibiotics, ensure strict hand hygiene, be tested up to one year later to see if they are a carrier and not prepare or serve food to others.

**LINKS**

ICRC antibiotic protocol for typhoid perforation


MSF Essential Drugs (2019)

https://medicalguidelines.msf.org/viewport/EssDr/english/essential-drugs-16682376.html

MSF Clinical Guidelines (2019)


**REFERENCES**


CARING FOR A PATIENT WITH SUSPECTED EBOLA

OVERVIEW

Ebola virus disease (EVD), also known as Ebola haemorrhagic fever, is a rare but severe, often-fatal illness affecting humans. It occurs primarily in Africa. The virus is transmitted to people from wild animals (fruit bats, chimpanzees, gorillas, monkeys, etc.) and spreads through the human population via direct contact.

OBJECTIVES

To ensure health-care workers understand and effectively use protective measures when caring for a suspected EVD patient.

To guide the health-care workers on how to identify a possible EVD case and care for a suspected EVD patient.

TRANSMISSION

EVD spreads via direct contact (through broken skin or mucus membranes) with the following:

- the blood or other body fluids (sweat, urine, saliva, faeces, vomit, semen, breast milk) of a person who is sick with, or has died from, EVD
- objects that have been contaminated with the body fluids of a person who is sick with, or has died from, EVD
- semen from a man who has recovered from EVD (through oral, vaginal or anal sex)
- infected fruit bats or non-human primates.

A person can only spread EVD to other people after they develop signs and symptoms of EVD.

According to the Centers for Disease Control and Prevention, EVD is not known to spread through food. However, in some parts of the world, EVD can be transmitted when handling or eating wild animal meat that is infected with EVD. Mosquitoes and other insects do not transmit EVD.

RISK FACTORS

Those at highest risk of contracting EVD include:

- family and friends in close contact with people infected with EVD
- health-care workers who do not use correct infection-control methods when caring for EVD patients.

Health-care workers have frequently been infected while treating patients with suspected or confirmed EVD.
SIGNS AND SYMPTOMS

The time between first contact with the virus and the onset of symptoms (the incubation period) is two to 21 days – eight to ten days on average. A person infected with EVD cannot spread the disease until they develop symptoms.

Symptoms of EVD can be sudden and include:
- initial “dry” symptoms such as fever, fatigue, muscle pain, joint pain, headache, sore throat and abdominal pain
- then “wet” symptoms such as diarrhoea, vomiting, rash/purpura, impaired kidney and liver function, unexplained haemorrhaging, bleeding or bruising and hiccups (late-stage EVD).

Many common illnesses can have the same symptoms as EVD, including influenza, malaria, meningitis or typhoid.

PROTECTIVE MEASURES FOR HEALTH-CARE WORKERS

EVD is transmitted through direct contact with body fluids or with objects contaminated by body fluids. Protective measures when caring for a suspected or confirmed EVD case include:
- good hand hygiene – either hand-washing with soap and water or chlorinated water or using alcohol-based hand gel
- wearing protective gloves – one pair of non-sterile gloves and a pair of household rubber gloves on top wearing a protective mask with either a face-shield or glasses
- wearing protective boots
- wearing a protective gown or full-length coverall with long sleeves and long pants that go over the boots
- wearing a protective plastic apron over the gown/coverall.

If you are working in a health-care setting where there is an EVD outbreak, you will be provided with special training on putting on, using and taking off personal protective equipment (PPE), among other things.

World Health Organization guidelines for putting on PPE
- General PPE plus gown: https://apps.who.int/iris/bitstream/handle/10665/150115/WHO_HIS_SDS_2015.1_eng.pdf;jsessionid=A8E297C3D20838A73FCE6F377B230ACA?sequence=1
- General PPE plus coverall: https://apps.who.int/iris/bitstream/handle/10665/150116/WHO_HIS_SDS_2015.2_eng.pdf?sequence=1

World Health Organization guidelines for taking off PPE
- General PPE plus gown: https://apps.who.int/iris/bitstream/handle/10665/150117/WHO_HIS_SDS_2015.3_eng.pdf?sequence=1
- General PPE plus coverall: https://apps.who.int/iris/bitstream/handle/10665/150118/WHO_HIS_SDS_2015.4_eng.pdf?sequence=1

IDENTIFYING A POSSIBLE EVD CASE

It is important to be able to identify someone who presents with signs and symptoms of EVD.

The following will help you to identify EVD either in the community or at a health centre.
Alert case (to be used in community-based surveillance)

- Illness with the onset of a fever that does not respond to treatment of the usual cause of fever in a geographic area
- At least one of the following signs: bleeding, bloody diarrhoea, blood in the urine
- Any sudden death

Suspected case (to be used by health centres)

- Any person, alive or dead, who has or had a sudden onset of high fever and has had contact with:
  - a suspected, probable or confirmed EVD case
  - a dead or sick animal that was infected with the Ebola virus
- Any person with the sudden onset of a high fever and at least three of the following symptoms:
  - headaches
  - lethargy
  - anorexia/loss of appetite
  - aching muscles or joints
  - stomach pain
  - difficulty swallowing
  - vomiting
  - difficulty breathing
  - diarrhoea
  - hiccups
- Any person with unexplained bleeding
- Any sudden, unexplained death

Laboratory-confirmed case

Any suspected or probable case with a positive laboratory result. Laboratory-confirmed cases must test positive for the virus antigen, either by detection of virus RNA using reverse transcription polymerase chain reaction (RT-PCR), or by detection of immunoglobulin M antibodies directed against the Ebola virus.

WHAT TO DO WHEN A SUSPECTED CASE HAS BEEN IDENTIFIED

Staff trained in EVD identification, usually National Society volunteers, are responsible for screening all people at the entry point of the health facility where the ICRC is working.

A World Health Organization (WHO) EVD identification questionnaire is completed by the screening staff for each person who presents with a high fever; if the answers on the form match with the definition of a suspected EVD case (described above) the screening staff informs the resident EVD focal point.

The resident EVD focal point is usually a doctor or nurse trained in EVD and designated by the health centre’s directorate. They are responsible for confirming the suspected case and notifying the EVD surveillance teams. The focal point is the link between the health centre and the Ebola response system.

In area with a high risk of EVD or where there is a confirmed EVD outbreak, governmental or WHO surveillance teams are in charge of responding to suspected cases or initiating an alert of early warning signs of EVD.
PATIENTS WITH FEVERS IN AN EVD AREA

Non-ICRC patient

- The identification staff members fill in the WHO EVD questionnaire.
- If the questionnaire is negative, the patient can carry on to receive care as usual.
- If the questionnaire is positive, it is a suspected case. The following happens:
  1. The patient and their carers are isolated to specific EVD areas.
  2. The identification staff members inform the resident EVD focal point.
  3. The EVD focal point then contacts the EVD surveillance team.
  4. The surveillance team transfers the patient to an Ebola transit/isolation centre to get samples for EVD testing.
  5. Two tests of the same kind are done – if the first test is negative, the patient is tested a second time 24 hours later.
  6. It takes about 24 hours to get the result of each test. From collecting the first sample to receiving the result of the second test, it takes about 72 hours.
  7. The carers are considered EVD contacts, so they get registered for close surveillance and vaccinated against EVD.

ICRC patient

- The identification staff members fill in the WHO EVD questionnaire.
- If the questionnaire is negative, the patient can carry on to receive care as usual.
- If the questionnaire is positive, it is a suspected case. The following happens:
  1. The patient and their carers are isolated.
  2. The identification staff members inform the resident EVD focal point.
  3. The resident EVD focal point informs the ICRC EVD focal point (usually the head nurse).
  4. The ICRC EVD focal point informs the ICRC surgical team for an urgent surgical evaluation.
  5. The surgical team makes a risk analysis (is the patient’s life or limb in danger? does the patient urgently need surgical stabilization? etc.). The evaluation is done while maintaining distance between ICRC staff and the patient (a no-touch evaluation).
    - If yes – the team stabilizes the patient within the ICRC EVD stabilization area using specific, advanced personal protective measures.
    - If no – the resident EVD focal point contacts the surveillance team to follow the two-test procedure, and the patient’s carers are registered for close surveillance as EVD contacts. If the two tests are negative, the patient will be transferred back to the ICRC health facility to receive surgical care. If the patient is positive, they will be treated at the Ebola treatment centre.

GENERAL CONSIDERATIONS WHEN WORKING IN AN EVD-RISK AREA

- Hygiene is imperative – all measures to ensure strict hygiene standards must be put in place.
- Handwashing points (with water and soap) must be available in each room.
- Education about good hygiene practices must be provided to staff and patients.
- Thorough washing of the hospital wards – walls, bedside tables, windows, etc. – must be done on a weekly basis.
- Health staff must avoid direct contact with patients, carers and their belongings.
- Health staff must always wear personal protective equipment (e.g. gloves, a mask, an apron, closed shoes) and practice hand hygiene.
- The temperature of the patient and their carers must be taken twice a day and recorded in the patient notes.
- Visits must be restricted, and all visitors must be briefed on the need for reduced contact with patients as well as good hand hygiene.
- If an inpatient develops any EVD signs or symptoms, the ICRC EVD focal point must be informed as soon as possible to arrange further investigation (filling out the WHO questionnaire and contacting the resident EVD focal point, if necessary).
  - For a positive questionnaire: the patient and their carer must be isolated; the resident EVD focal point must be informed and get in touch with the EVD surveillance team; all patients and carers with whom the suspected EVD case has shared a room are considered contact cases; the room and all its contents must be disinfected.
  - For a negative questionnaire: search for other causes of the presenting signs and symptoms.
- Avoid any behaviour that could stigmatize the patient and/or their carer.
- Ensure mental-health support is available for suspected EVD cases.
• All health workers must be vaccinated against EVD. The Merck single-dose vaccine, known as V920 or rVSV–ZEOBV–GP, was approved by the United States Food and Drug Administration in December 2019 and by the European Medicines Agency in November of the same year.

EVD RECURRENCE AND REINFECTION WITH EBOLA

EVD is understudied, and some aspects of the disease remain unclear. Studies have examined and continue to examine the possibility of reinfection with Ebola and recurrence of EVD. The long-term implications of recurrence and infection are unknown.

Sexual transmission from survivors of the 2014 epidemic has been reported. There are also documented cases of survivors who have been readmitted to hospital with a seeming recurrence of EVD symptoms.

EVD has been shown to cause symptoms in a recovered patient even though the virus had been cleared from their blood. Studies have shown that EVD can persist at immunologically protected sites in the body, including semen, vaginal fluid, sweat, the aqueous humour (inside the eye), breast milk and urine.

MacIntyre and Chughtai (2016) report that the persistence of virus poses the following risks (p. 58):
• transmission to others while asymptomatic (for example, sexual transmission)
• reactivation of illness in the affected individual
• transmission to others from symptomatic individuals with recurring illness.

More studies are needed on the subject, but a range of precautions should be taken to minimize the risk or recurrence and further outbreaks, including:
• the use of condoms by survivors for sexual contact for 12 months, until further research is available
• testing of survivors who have positive semen on a regular basis until the virus has cleared (recommended by the WHO)
• care and follow-up for survivors focusing on preventive health measures and keeping their immune system strong, e.g. managing chronic illness, ensuring vaccinations are up to date and promoting a healthy lifestyle with a nutritious diet.

REFERENCES


FURTHER EVD RESOURCES

WHO: Clinical Care for Survivors of Ebola Virus Disease
https://apps.who.int/iris/bitstream/handle/10665/204235/WHO_EVD_OHE_PED_16.1_eng.pdf?sequence=1

WHO: Psychological First Aid During Ebola Virus Disease Outbreaks
https://apps.who.int/iris/bitstream/handle/10665/10665/131682/9789241568847_eng.pdf?sequence=1

WHO: How to Conduct a Safe and Dignified Burial of a Patient who has Died from Suspected or Confirmed Ebola or Marburg Virus Disease
https://apps.who.int/iris/bitstream/handle/10665/137379/WHO_EVD_GUIDANCE_Burials_14.2_eng.pdf?sequence=1

WHO: Ebola Virus Disease: Key Questions and Answers concerning Water, Sanitation and Hygiene
https://apps.who.int/iris/bitstream/handle/10665/137181/WHO_EVD_WSH_14_eng.pdf?sequence=1

ANNEX I: MSF GUIDELINES ON USE OF PERSONAL PROTECTIVE EQUIPMENT

Personal protective equipment for medical activities

<table>
<thead>
<tr>
<th>COVERALL</th>
<th>Medical device class: I Justification code: P</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVERALL, hooded, s.u., L (Tychem®C, model CHA5)</td>
<td>2</td>
</tr>
<tr>
<td>COVERALL, hooded, s.u., M (Tychem®C, model CHA5)</td>
<td></td>
</tr>
<tr>
<td>COVERALL, hooded, s.u., XL (Tychem®C, model CHA5)</td>
<td></td>
</tr>
<tr>
<td>COVERALL, hooded, s.u., XXL (Tychem®C, model CHA5)</td>
<td></td>
</tr>
</tbody>
</table>

Personal protective equipment that fully covers the wearer’s body from head to ankles. Intended to be worn over a surgical tunic and trousers to protect medical and non-medical staff from exposure to inorganic chemicals and infective biological agents.
Norms:
Protective clothing (PPE) category III complex design:
- Chemical protective clothing Types 3, 4, 5, 6
- Protective clothing against infective agents type 3B (liquid tight) and 4B (spray tight)

EN 340: 2003 Protective clothing, general requirements.

Requirements:
The coverall provides very high level of protection against the penetration of liquids and micro–organisms, excellent mechanical properties, including tear and abrasion resistance, outstanding softness to prevent skin irritations, ease of movements and comfort.
- Thumb–loops to provide good fit of the coverall and prevent the sleeves from riding up.
- Elastic cuffs and ankles to ensure good fit and closure at critical points
- Elastic waist for optimum fit to body
- Ensures wearer comfort as well as protections

Non-standard Coveralls:
- COVERALL, no hood (Microgard 2000TS+, yellow)
- COVERALL, hooded (Microgard 2000TS, model 103, yellow)
- COVERALL, hooded (Tychem® CQ)

GLOVE EXAMINATION

| GLOVE, EXAMINATION, nitrile, extended cuff, s.u., non ster. L | Medical device class: I |
| GLOVE, EXAMINATION, nitrile, extended cuff, s.u., non ster. M | Justification code: P |
| GLOVE, EXAMINATION, nitrile, extended cuff, s.u., non ster. S |

Non sterile glove with extended cuff used to protect both patient and staff from infections transmitted through contact with the hands. Does not leave exposed skin around the wrist area.
### GLOVE SURGICAL

<table>
<thead>
<tr>
<th>Description</th>
<th>Size</th>
<th>Description</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLOVES, SURGICAL, latex, s.u., sterile, pair</td>
<td>6</td>
<td>GLOVES, SURGICAL, latex, s.u., sterile, pair</td>
<td>6.5</td>
</tr>
<tr>
<td>GLOVES, SURGICAL, latex, s.u., sterile, pair</td>
<td>7</td>
<td>GLOVES, SURGICAL, latex, s.u., sterile, pair</td>
<td>7.5</td>
</tr>
<tr>
<td>GLOVES, SURGICAL, latex, s.u., sterile, pair</td>
<td>8</td>
<td>GLOVES, SURGICAL, latex, s.u., sterile, pair</td>
<td>8.5</td>
</tr>
<tr>
<td>GLOVES, SURGICAL, latex, s.u., sterile, pair, 2 pairs</td>
<td>6</td>
<td>GLOVES, SURGICAL, latex, s.u., sterile, pair, 2 pairs</td>
<td>6.5</td>
</tr>
<tr>
<td>GLOVES, SURGICAL, latex, s.u., sterile, pair, 2 pairs</td>
<td>7</td>
<td>GLOVES, SURGICAL, latex, s.u., sterile, pair, 2 pairs</td>
<td>7.5</td>
</tr>
<tr>
<td>GLOVES, SURGICAL, latex, s.u., sterile, pair, 2 pairs</td>
<td>8</td>
<td>GLOVES, SURGICAL, latex, s.u., sterile, pair, 2 pairs</td>
<td>8.5</td>
</tr>
</tbody>
</table>

### HOUSEHOLD GLOVES

<table>
<thead>
<tr>
<th>Description</th>
<th>Size</th>
<th>Description</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLOVE, PROTECTIVE, nitrile, reusable, n.p., pair</td>
<td>8</td>
<td>GLOVE, PROTECTIVE, nitrile, reusable, n.p., pair</td>
<td>10</td>
</tr>
</tbody>
</table>

Secure, flexible, tear resistant and easy to decontaminate.

### GOGGLES

<table>
<thead>
<tr>
<th>Description</th>
<th>Justification code</th>
</tr>
</thead>
<tbody>
<tr>
<td>GOGGLES, wraparound, waterproof (Blast Blepsi)</td>
<td>P</td>
</tr>
<tr>
<td>GOGGLES, wraparound, indirect ventilation (Ultravision)</td>
<td></td>
</tr>
<tr>
<td>GOGGLES, wraparound, flat nose, indirect ventilation (Ultravision)</td>
<td></td>
</tr>
</tbody>
</table>

Condensation which impairs the user's vision, is obviously dangerous. Use of anti-fog spray is recommended.
<table>
<thead>
<tr>
<th><strong>GOOGLES</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>(goggles indirect ventilation Ultravision) PANORAMIC LENS</td>
</tr>
<tr>
<td>(goggles flat nose Ultravision) PANORAMIC LENS</td>
</tr>
<tr>
<td>Safety wraparound goggles which protect the eyes from dust and splashing in haemorrhagic fever contexts. Provided with shielded air inlets. Stop accidental touching of eyes and nose.</td>
</tr>
</tbody>
</table>

**Norms:**
- Directive 89/686/EEC on PPE

<table>
<thead>
<tr>
<th><strong>HOOD</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>HOOD, non-woven, VHF, s.u. (Tyvek PH30LO)</td>
</tr>
<tr>
<td>HOOD, non-woven, integrated mask, VHF, s.u.</td>
</tr>
<tr>
<td>Hood allowing to fully cover and protect the head and upper part of the torso for the staff working in haemorrhagic fever contexts. Do not tuck the hood shoulder flaps under the coverall.</td>
</tr>
</tbody>
</table>

**Norms:**
EN14126 with level ≥4/6 for test ISO 16603 and preferably level ≥4/6 for test ISO 16604

<table>
<thead>
<tr>
<th><strong>APRON</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>APRON SURGICAL, rubber</td>
</tr>
<tr>
<td>Wide enough to extend around the back. Prevents liquids and other materials coming into contact with the coveralls, easy to decontaminate. Protects as well against potential friction on coverall during washing, moving patients, waste management, etc.</td>
</tr>
</tbody>
</table>
### MASK

<table>
<thead>
<tr>
<th>RESPIRATOR, FFP2 or N95 (Fluidshield N95) medium</th>
</tr>
</thead>
<tbody>
<tr>
<td>RESPIRATOR, FFP2 or N95 (3M-1862)</td>
</tr>
</tbody>
</table>

Fluid repellent, comfortable to wear, maximum facial surface covered, good seal to the face without touching the lips. Must maintain filtration capacity and an easy through-flow of air even with condensation or sweat. The use with full beards is not recommended as an effective seal is impossible.

### SCRUBS

<table>
<thead>
<tr>
<th>TROUSERS, SURGICAL, woven, L</th>
</tr>
</thead>
<tbody>
<tr>
<td>TROUSERS, SURGICAL, woven, M</td>
</tr>
<tr>
<td>TROUSERS, SURGICAL, woven, S</td>
</tr>
<tr>
<td>TUCK, SURGICAL, woven, L</td>
</tr>
<tr>
<td>TUCK, SURGICAL, woven, M</td>
</tr>
<tr>
<td>TUCK, SURGICAL, woven, S</td>
</tr>
</tbody>
</table>

Personal clothing should never be worn under the scrub suit. If not enough scrub suits are available, they can be easily made locally with light cotton.

### DEAD BODY MANAGEMENT MATERIALS

<table>
<thead>
<tr>
<th>BAG, BODY, plastic, white, 300 microns, adult, 250 x 120 cm</th>
<th>Justification code: P</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAG, BODY, plastic, white, 300 microns, child, 150 x 100 cm</td>
<td></td>
</tr>
<tr>
<td>(body bag) PAD, ABSORBENT, child</td>
<td></td>
</tr>
<tr>
<td>(body bag) PAD, ABSORBENT, adult</td>
<td></td>
</tr>
<tr>
<td>(body bag) PAD, ABSORBENT, 720 x 370 mm</td>
<td></td>
</tr>
</tbody>
</table>
ANNEX II: SAMPLE EVD QUESTIONNAIRE (FRENCH VERSION – DEMOCRATIC REPUBLIC OF THE CONGO)

**FICHE DE TRIAGE**

**FORMAION SANITARE**

PREMIER OUTIL OBLIGATOIRE A UTILISER POUR TOUT NOUVEAU MALADE A SON ARRIVEE (24/24)

Renseignements sur le malade

- **Nom du Malade:**
- **Sexe:** M / F
- **Age:**
- **Date:** / / 20
- **Numéro du Registre:**

Motifs de consultation:

- **Date de début des symptômes:**
- **Le malade a-t-il reçu un traitement avant de venir à l'hôpital?**
  - OUI
  - NON
- **Si oui, quel type de traitement a-t-il reçu?**

- **Où le malade a-t-il reçu le traitement?**
  - Hôpital/Centre de Santé: (Nom)
  - Médecine traditionnelle (Soins Traditionnels): (Nom)
  - Autres:

Symptômes de la MVE Présents

<table>
<thead>
<tr>
<th>Symptôme</th>
<th>Oui</th>
<th>Non</th>
<th>Jour</th>
<th>Température</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fièvre</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Céphalées</td>
<td>Oui</td>
<td>Non</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nausées</td>
<td>Oui</td>
<td>Non</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vomissements</td>
<td>Oui</td>
<td>Non</td>
<td>Sanglant ?</td>
<td>Oui</td>
</tr>
<tr>
<td>Toux</td>
<td>Oui</td>
<td>Non</td>
<td>Sanglant ?</td>
<td>Oui</td>
</tr>
<tr>
<td>Diarrhée</td>
<td>Oui</td>
<td>Non</td>
<td>Sanglante ?</td>
<td>Oui</td>
</tr>
<tr>
<td>Yeux hémorragiques/Conjonctivite/ Yeux Rouges</td>
<td>Oui</td>
<td>Non</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autres hémorragies</td>
<td>Oui</td>
<td>Non</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficultés à Respirer</td>
<td>Oui</td>
<td>Non</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Douleurs articulaires/Musculaires</td>
<td>Oui</td>
<td>Non</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perte d'appétit</td>
<td>Oui</td>
<td>Non</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asthénie/Fatigue</td>
<td>Oui</td>
<td>Non</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Douleurs Abdominales</td>
<td>Oui</td>
<td>Non</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Douleurs thoraciques</td>
<td>Oui</td>
<td>Non</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ictère (Couleur Jaunâtres des muqueuses et téguments)</td>
<td>Oui</td>
<td>Non</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Difficultés à avaler</td>
<td>Oui</td>
<td>Non</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hoquet</td>
<td>Oui</td>
<td>Non</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mal à la gorge</td>
<td>Oui</td>
<td>Non</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Éruption cutanée</td>
<td>Oui</td>
<td>Non</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Douleur retro-orbitaires</td>
<td>Oui</td>
<td>Non</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coma/Perte de conscience</td>
<td>Oui</td>
<td>Non</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confusions ou désorientations</td>
<td>Oui</td>
<td>Non</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autres signes non hémorragiques,</td>
<td>Oui</td>
<td>Non</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Si oui précisez</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Antécédents de contact pendant les derniers 21 jours

- **Y-t-il quelqu'un de malade dans la famille?**
  - Oui
  - Non
- **Avez-vous visité quelqu'un de malade ?**
  - Oui
  - Non
- **Y a-t-il eu un décès dans votre famille récemment?**
  - Oui
  - Non
- **Avez-vous assisté à un enterrement récemment?**
  - Oui
  - Non
- **Etes-vous vacciné contre le virus d'Ebola?**
  - Oui
  - Non

**SUSPICION DE MVE**

- **Oui**
- **Non**

Déditéon avec le Malade (Cochez la case devant votre décision)

- **Salle de Médecine**
- **Salle de maternité**
- **Salle de chirurgie**
- **Salle d'Urgence**
- **Salle d'isolement MVE**
- **Sortie à la maison**

**Remarques:**

- **Nom et signature de l'infirmier/Médecin:**
NON-COMMUNICABLE DISEASES

OVERVIEW

Non-communicable diseases (NCDs) are a group of chronic diseases usually of lifetime duration and often resulting from genetic, environmental and behavioural factors. The World Health Organization estimates that NCDs account for more than 70% of deaths worldwide, predominantly in low- and middle-income countries.

There are many causes and risk factors leading to the development of an NCD.

Modifiable risk factors include:
- tobacco use
- physical inactivity
- unhealthy diet
- harmful use of alcohol
- air pollution.

Other causes are:
- urbanization
- poverty
- ageing
- obesity.

NCDs are costly to treat and often beyond the financial means of those living in low-income countries.

Armed conflict and other situations of violence have resulted in millions of people having to flee their homes and become displaced. The added stress and difficult living conditions, as well as reduced access to health care, puts this population at greater risk of exacerbating any pre-existing NCDs and/or suffering complications.

OBJECTIVE

To ensure the nurse is able to identify patients at risk of or suffering from an NCD and can provide high-quality care to these patients as necessary or refer them to appropriate services.

THE ICRC’S APPROACH TO NCDS

The ICRC’s health strategy 2014–18 addressed the need to take a public-health approach to NCDs in armed conflict and other situations of violence. Owing to the multiple challenges where we work, the ICRC can only address NCDs that are increasingly prevalent and may result in life-threatening risks if not treated. These include cardiovascular disease, diabetes and asthma.

The ICRC works by the following principles:
- patient-centred care
- a continuum of care
- an integrated approach
- sustainability through partnership and advocacy.
The ICRC’s work on NCDs focuses on the following:
• identifying and managing symptoms
• providing essential medications and supplies to prevent complications
• encouraging patients to self-manage
• access to diagnostics
• referral pathways
• general follow-up
• monitoring.

The ICRC has also adapted its standard list of drugs to be in line with those of the World Health Organization and Médecins Sans Frontières.

**MANAGEMENT**

Management of NCDs includes prevention, detection and treatment. This is often carried out in the primary-health-care setting but can also be provided in the hospital setting.

**Cardiovascular diseases**
Cardiovascular diseases affect the heart and blood vessels. They are the number one cause of death worldwide. They include coronary heart disease, cerebrovascular disease, rheumatic heart disease, congenital heart disease, deep vein thrombosis and pulmonary embolisms.

Risk factors for cardiovascular diseases include an unhealthy diet, lack of physical activity, smoking, obesity, hypertension, diabetes and increased blood lipids. This can result in heart disease, heart attack or stroke.

The nurse should monitor all inpatients’ blood pressure. If blood pressure is high with no obvious cause, the patient may need non-medical or medical treatment and/or referral to a specialist centre.

**Chronic respiratory diseases**
Chronic respiratory diseases affect the airway and lungs. They include chronic obstructive pulmonary disease and asthma.

Risk factors for respiratory disease include smoking, air pollution, allergens and occupational hazards.

If a patient has trouble breathing, shortness of breath, wheezing and/or low oxygen saturation levels with no obvious cause, further investigations may be required, including chest X-ray, lung assessment and peak flow. The patient can be treated or referred elsewhere if possible.

**Diabetes**
Diabetes is a chronic metabolic disease characterized by high levels of glucose in the blood, caused by a lack of insulin or resistance to insulin.

There are three main types of diabetes: type 1, type 2 and gestational. If untreated, diabetes can lead to serious health problems, including: infections; damage to blood vessels; neurological, kidney, eye and heart damage; ketoacidosis; and coma.

Symptoms include high blood sugar, fatigue, weight loss, increased thirst and increased urination.
NURSING CARE

The nurse should be aware of the different types of NCDs that exist and the burden these illnesses can have on the patient, their family and their stay in hospital. The presence of an underlying NCD can affect a patient’s healing and recovery and cause many post-operative complications.

The nurse should be able to identify at-risk patients or patients who may already have an NCD. These patients may require treatment and management while in hospital or referral to other services when discharged.

The nurse plays a key role in educating the patient and encouraging them to:
• reduce their alcohol intake
• exercise
• stop smoking
• lose weight
• eat more fruits and vegetables
• reduce their salt, sugar and fat intake
• take prescribed medications
• attend follow-up appointments.

LINKS

Health wiki: Primary Care International guidelines for NCDs

Health wiki: Médecins Sans Frontières NCD guidelines (2018)

REFERENCES


ICRC NURSING GUIDELINE 35

COMMUNICABLE DISEASES

OVERVIEW
Communicable diseases are caused by microorganisms, such as bacteria, viruses, parasites and fungi.

They can be spread by direct contact, indirect contact, air, ingestion of contaminated food or water or through insect/animal bites.

There are many communicable diseases, and these nursing guidelines cover certain common ones including malaria (Guideline 30), tetanus (Guideline 31), typhoid (Guideline 32) and Ebola (Guideline 33).

Other communicable diseases that patients suffer from include tuberculosis, HIV, hepatitis, measles, cholera and kala-azar.

The World Health Organization (WHO) and Médecins Sans Frontières (MSF) provide up-to-date guidelines on most communicable diseases, which can be referred to for further management and specific nursing care.

OBJECTIVE
To ensure the nurse is able to provide high-quality care to patients with communicable diseases and effectively prevent the spread of disease.

LINKS
MSF guidelines on tuberculosis:

MSF guidelines on cholera:

MSF guidelines on measles:

WHO guidelines on communicable diseases:
https://www.who.int/publications/guidelines/communicable_diseases/en/

WHO fact sheets on neglected tropical diseases:
https://www.who.int/topics/tropical_diseases/factsheets/neglected/en/
ICRC NURSING GUIDELINE 36
CARING FOR A CHILD UNDERGOING SURGERY

OVERVIEW

Children may require surgery for many reasons in ICRC-supported hospitals, and it is important that special considerations – both psychosocial and physical – are made for children undergoing surgery. Significant involvement of their parents/guardians in children’s care pre- and post-operatively can reduce the stress, anxiety and pain the children experience and can enhance their recovery.

OBJECTIVE

To ensure the nurse is able to provide high-quality pre- and post-operative care to children undergoing surgery.

PREOPERATIVE NURSING MANAGEMENT

Psychosocial

- Ensure the procedure/operation is explained to the child in an age-appropriate way. Enlist the support of mental health and psychosocial support staff if necessary.
- Informed consent must always be obtained from a parent or guardian prior to surgery – see Guideline 12, on consent.
- Parents/guardians should be encouraged to stay with the child for as long as possible before the operation.
- Where possible, delay any invasive or traumatic procedures until the child is sedated, e.g. insertion of a nasogastric tube.

Physical

Refer to Guideline 11, on preoperative care.

- Do not withhold analgesia when the patient is fasting.
- An up-to-date set of vital signs should be taken and documented.
- The anaesthetist is to be informed if abnormal vital signs are present.
- The child should be weighed and the weight documented clearly on the patient’s chart.
- Ask a parent/guardian to wash the child. Provide clean clothing or a gown.

Preoperative fasting

Children are susceptible to hypoglycaemia and dehydration because of excessive fasting. Additionally, prolonged fasting can cause increased stress in the child, resulting in irritability and anxiety prior to the surgery.

The table below outlines the ICRC’s preoperative fasting guidelines for children. This guideline can be found in full under “Anaesthesia” on the health wiki.
### FASTING GUIDELINES FOR CHILDREN (ONE TO 16 YEARS OLD)

<table>
<thead>
<tr>
<th>Time before induction of anaesthesia</th>
<th>Allowed</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least one hour beforehand</td>
<td>Water or sugar water up to 3 ml/kg</td>
</tr>
<tr>
<td></td>
<td>Maximum volume by age:</td>
</tr>
<tr>
<td></td>
<td>- 1–5 yr: 55 ml</td>
</tr>
<tr>
<td></td>
<td>- 6–12 yr: 140 ml</td>
</tr>
<tr>
<td></td>
<td>- 12–16 yr: 250 ml</td>
</tr>
<tr>
<td>Other clear fluids may also be tolerated (ORS, clear fruit juice and soda)</td>
<td></td>
</tr>
<tr>
<td>At least four hours beforehand</td>
<td>Breast milk</td>
</tr>
<tr>
<td>At least six hours beforehand</td>
<td>Foods (solids, formula milk and drinks containing milk)</td>
</tr>
</tbody>
</table>

### SPECIAL CONSIDERATIONS:

The following children are at increased risk of complications during anaesthesia, which should be discussed with the anaesthetist prior to surgery:
- children with gastro-oesophageal reflux and delayed stomach emptying
- severely malnourished children
- premature babies and neonates
- significant systemic disease
- oxygen saturation levels under 94%.

### POST-OPERATIVE MANAGEMENT

See Guideline 13, on post-operative care.
- Children should be kept in a warm, calm and quiet place while recovering from surgery and anaesthesia.
- Parents/guardians should be reunited with children as soon as possible.
- Children should be positioned in a way to reduce post-operative discomfort.
- Analgesia should be given post-operatively as prescribed.
- Children should be encouraged to drink fluids once awake and, if tolerated, recommence oral feeding (unless contraindicated).
- Children unable to tolerate oral fluids should be prescribed intravenous fluids to avoid dehydration.
- Vital signs should be assessed regularly, and any abnormalities reported to the anaesthetist or doctor in charge.

### Ongoing care

- Parents/guardians should be made aware of the follow-up plan, including the frequency of dressing changes and physiotherapy requirements.
- Ensure the parents/guardians are aware of and present during any procedures performed on the child.
- In the absence of a parent/guardian, a nurse should be assigned to the child.
- Pain relief and/or sedation should always be prescribed and given with adequate time in advance of any painful procedure.
- Use age-appropriate distraction techniques during any procedure, e.g. bubble-blowing for infants or books for older children.
- Ensure the child has adequate nutritional intake and, if necessary, discuss nutritional supplements with the paediatrician or responsible doctor.
LINKS

Health wiki: ICRC fasting guidelines for elective surgery (updated, 2017)

REFERENCES


ICRC NURSING GUIDELINE 37

CARING FOR A SEVERELY UNWELL CHILD

OVERVIEW

Caring for unwell children who have the potential to deteriorate rapidly can pose challenges to the health-care professional. To provide timely and appropriate care, it is important for the nurse to recognize a severely unwell child and start treatment as soon as possible. Neonates (children under three months old) normally require very specific care, which is not within the scope of this guideline (see “Links”, below, for guidelines on neonate care).

OBJECTIVES

To ensure the nurse is familiar with the normal vital-sign parameters for children.

To ensure the nurse is able to recognize and assess severely unwell children and provide immediate, high-quality nursing care.

VITAL-SIGN PARAMETERS

A child’s vital signs can differ greatly depending on their age. The table below outlines the range of normal physiological parameters for children.

<table>
<thead>
<tr>
<th>AGE (YEARS)</th>
<th>HEART RATE (BEATS PER MIN)</th>
<th>RESPIRATORY RATE (BREATHS PER MIN)</th>
<th>NORMAL SYSTOLIC BLOOD PRESSURE (mmHg)</th>
<th>LOWEST SYSTOLIC BLOOD PRESSURE (mmHg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1</td>
<td>110–160</td>
<td>30–40</td>
<td>80–90</td>
<td>65–75</td>
</tr>
<tr>
<td>1–2</td>
<td>100–150</td>
<td>25–35</td>
<td>85–90</td>
<td>70–75</td>
</tr>
<tr>
<td>2–5</td>
<td>95–140</td>
<td>25–30</td>
<td>85–100</td>
<td>70–80</td>
</tr>
<tr>
<td>5–12</td>
<td>80–120</td>
<td>20–25</td>
<td>90–100</td>
<td>80–90</td>
</tr>
<tr>
<td>&gt; 12</td>
<td>60–100</td>
<td>15–20</td>
<td>100–120</td>
<td>90–105</td>
</tr>
</tbody>
</table>

NB These values are meant as a guide only. The definition of normal physiological parameters for children varies by publication, and other physiological signs must be taken into account when assessing children.

ESTIMATING WEIGHT

For children between one and ten years old: Weight (kg) = (age + 4) x 2.
To ensure children receive appropriate and timely treatment, the nurse needs to recognize the signs of an unwell child. As with all patients, it is important to assess the child in a systematic way. Therefore, the primary survey (ABCDE approach) is an appropriate method of identifying potentially life-threatening conditions immediately.

During the initial assessment the nurse should take immediate actions to manage life-threatening conditions. The possible causes of such life-threatening conditions are listed below, but the list is not exhaustive.

**Airway**
The relatively small size and softness of a child’s airway means that it has an increased chance of becoming obstructed. Children under one year have large heads in relation to the rest of their bodies.

<table>
<thead>
<tr>
<th>SIGNS OF SERIOUS ILLNESS</th>
<th>IMMEDIATE ACTIONS</th>
<th>POSSIBLE CAUSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Stridor</td>
<td>- Open airway</td>
<td>- Croup</td>
</tr>
<tr>
<td>- Hoarse voice</td>
<td>- Administer oxygen</td>
<td>- Epiglottitis</td>
</tr>
<tr>
<td>- Neck swelling or bruising</td>
<td>- Suction if necessary</td>
<td>- Tracheitis</td>
</tr>
<tr>
<td>- Expiratory wheeze</td>
<td>- For a foreign body: administer chest</td>
<td>- Foreign body</td>
</tr>
<tr>
<td>- Swelling of face or tongue</td>
<td>thrusts/back blows</td>
<td>- Trauma</td>
</tr>
<tr>
<td></td>
<td>- For anaphylaxis: administer intramuscular adrenalin</td>
<td>- Burns</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Anaphylaxis</td>
</tr>
</tbody>
</table>

*How to open a child’s airway*

**Children under one year:** Maintain the head in neutral position (see image below). A rolled-up towel can be placed under the child’s shoulders to maintain alignment.

**Neutral position in infants**

**Children over one year:** Use chin-lift/head-tilt or, if a spinal injury is suspected, use the jaw-thrust manoeuvre.

*Head-tilt chin-lift in children (no trauma)  Jaw thrust in children*
Ongoing management:
- Ensure airway patency is maintained.
- The child should be kept in a calm and quiet environment.

For management of the following conditions affecting the airway, please refer to the Médecins Sans Fron-tières (MSF) Clinical Guidelines:
- acute upper airway obstruction (page 44)
- other upper respiratory infections (page 56).

Breathing
Respiratory illness in children is common and can be life-threatening.

<table>
<thead>
<tr>
<th>SIGNS OF SERIOUS ILLNESS</th>
<th>IMMEDIATE ACTIONS</th>
<th>SOME POSSIBLE CAUSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Blue/cyanosed</td>
<td>- Give high-flow oxygen*</td>
<td>- Severe asthma</td>
</tr>
<tr>
<td>- Grunting</td>
<td>- Administer breaths via a bag-valve mask if the child is not breathing adequately</td>
<td>- Bronchiolitis</td>
</tr>
<tr>
<td>- Nasal flaring</td>
<td>- Patient may require immediate nebulized salbutamol</td>
<td>- Pertussis</td>
</tr>
<tr>
<td>- Use of accessory muscles</td>
<td>- For anaphylaxis: administer intramuscular adrenalin</td>
<td>- Chest trauma</td>
</tr>
<tr>
<td>- Tachypnoea</td>
<td></td>
<td>- Anaphylaxis</td>
</tr>
<tr>
<td>- Moderate to severe chest indrawing/recession</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Head bobbing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Expiratory wheeze</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Poor air entry</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* *When available, use a non-rebreather mask with reservoir bag.*

Ongoing management/monitoring:
- Continue to assess the patient for signs of respiratory distress as above.
- Monitor the patient’s respiratory rate and oxygen saturation levels regularly.
- Maintain oxygen saturation levels above 94%.
- If possible, position the patient in a semi-sitting position to improve oxygen flow to the lungs.

For management of the following conditions affecting breathing, please refer to the MSF Clinical Guidelines:
- severe anaphylactic reaction (page 12)
- whooping cough (page 63)
- bronchitis (page 65)
- bronchiolitis (page 67)
- acute pneumonia (page 69)
- staphylococcal pneumonia (page 75)
- asthma (page 77)
- pulmonary tuberculosis (page 82).

Circulation

<table>
<thead>
<tr>
<th>SIGNS OF SERIOUS ILLNESS</th>
<th>IMMEDIATE ACTIONS</th>
<th>SOME POSSIBLE CAUSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Decreased urine output</td>
<td>- Obtain intravenous (IV) access</td>
<td>- Vomiting and diarrhoea</td>
</tr>
<tr>
<td>- Capillary refill time &gt; 3 seconds</td>
<td>- Administer IV fluids*</td>
<td>- Trauma</td>
</tr>
<tr>
<td>- Sunken fontanelle</td>
<td>- For anaphylaxis: administer intramuscular adrenalin</td>
<td>- Cardiac disease</td>
</tr>
<tr>
<td>- Reduced skin turgor</td>
<td></td>
<td>- Burns</td>
</tr>
<tr>
<td>- Dry mucous membranes</td>
<td></td>
<td>- Anaphylaxis</td>
</tr>
<tr>
<td>- Sunken eyes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Mottled or pale skin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Tachycardia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Hypotension (terminal sign in children)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Urticarial rash (hives) associated with shock</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* *Fluids should be given via the enteral route whenever possible; however, in the severely unwell child with compromised circulation and shock, IV access needs to be obtained and IV fluids administered.*
IV FLUID RESUSCITATION FOR CHILDREN IN SHOCK WITHOUT MALNUTRITION

- Give a 10 to 20 ml/kg bolus of normal saline or Ringer’s lactate over 30 minutes.
- Reassess and, if there is no improvement, give a 10 ml/kg bolus over 30 minutes.

Ongoing management/monitoring:
- Carefully maintain the patient’s fluid balance (input/output).
- The patient’s pulse rate and pulse volume should be monitored.

For management of the following conditions affecting circulation please refer to the MSF Clinical Guidelines:
- shock (page 11)
- acute diarrhoea (page 85).

Disability

<table>
<thead>
<tr>
<th>SIGNS OF SERIOUS ILLNESS</th>
<th>IMMEDIATE ACTIONS</th>
<th>SOME POSSIBLE CAUSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduced level of consciousness (e.g. does not wake or stay awake)</td>
<td>Check blood glucose and administer glucose if necessary*</td>
<td>Malaria</td>
</tr>
<tr>
<td>Seizures</td>
<td>Take patient’s AVPU or modified Glasgow Coma Scale score</td>
<td>Meningitis</td>
</tr>
<tr>
<td>Floppy</td>
<td></td>
<td>Hypoglycaemia</td>
</tr>
<tr>
<td>High-pitched cry</td>
<td></td>
<td>Head injury</td>
</tr>
</tbody>
</table>

* A useful mnemonic: In your ABCDE assessment, DEFG – don’t ever forget glucose.

Ongoing management/monitoring:
- Continue to assess the patient using the AVPU scale or Modified Glasgow Coma Scale.
- It is important to ask the parents/guardians whether the patient is acting normally, as it will sometimes be difficult to tell.

AVPU scale for children

| A | Alert: Awake, crying, speaking, playing |
| V | Voice: Responsive to voice |
| P | Pain: Responsive to pain |
| U | Unresponsive or unconscious |

Also see Guideline 25, on care for unconscious patients.

For management of the following conditions please refer to the MSF Clinical Guidelines:
- seizures (page 17)
- hypoglycaemia (page 21)
- malaria (page 123)
- bacterial meningitis (page 172).

Exposure

<table>
<thead>
<tr>
<th>SIGNS OF SERIOUS ILLNESS</th>
<th>IMMEDIATE ACTIONS</th>
<th>SOME POSSIBLE CAUSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothermia</td>
<td>Wrap the patient if hypothermic</td>
<td>Infection</td>
</tr>
<tr>
<td>Fever above 40°C</td>
<td>Cool febrile patients</td>
<td>Trauma</td>
</tr>
<tr>
<td>Non-blanching rash</td>
<td></td>
<td>Malnourishment</td>
</tr>
</tbody>
</table>

Ongoing management/monitoring:
- If symptomatic, treat a fever with antipyretics.
**Medication to manage fever in children**

**Paracetamol**
- Children under one month: 10 mg/kg three to four times daily (max. 40 mg/kg daily)
- Children under one month: 15 mg/kg three to four times daily (max. 60 mg/kg daily)

**Ibuprofen**
- Children between three months and 12 years: 5–10 mg/kg three times daily (max. 30 mg/kg daily)
- Children over 12 years: 200 to 400 mg three times daily (max. 1200 mg daily)

Also see [Guideline 14](#), on pain management.

For management of a fever, please refer to the MSF Clinical Guidelines, page 2.

**FOLLOW-UP**

All unwell children should be reviewed as soon as possible by a paediatrician or the designated medical officer.

**PSYCHOSOCIAL CARE**

- Always ensure that the child is communicated with using age-appropriate techniques.
- Always obtain consent from a parent/guardian.
- Use age-appropriate distraction techniques, particularly when performing a procedure that may be painful or distressing for the child.

**LINKS**

MSF Essential Obstetric and Newborn Care

**REFERENCES**


ICRC NURSING GUIDELINE 38

CARING FOR A WOMAN AFTER A CAESAREAN SECTION

OVERVIEW

A Caesarean section (C-section) is a surgical procedure performed on a pregnant woman to deliver a baby through an incision in the abdomen and uterus. This surgery requires technical expertise and a good obstetric knowledge. A C-section is associated with higher rates of maternal mortality and an increased risk of complications in future pregnancies.

In ICRC-supported hospitals a C-section is usually performed as an emergency procedure either by an obstetrician or a fully trained surgeon.

In low-resource or conflict settings, women often present at the hospital very late in their pregnancy and may have had little or no antenatal care prior to their arrival. This can affect the health and well-being of the mother and baby.

In most ICRC hospital projects where pregnant women are admitted for care and/or C-sections, the nurse should work closely with the midwife (resident or mobile) to ensure the delivery of expert care.

For neonatal care please refer to Médecins Sans Frontières’s Essential Obstetric and Newborn Care (2019).

OBJECTIVE

To ensure the nurse is able to provide high-quality care to a woman having a C-section as well as her newborn baby.

INDICATIONS

C-sections are performed for a number of maternal and foetal conditions.

MSF (2019) deems C-sections necessary in the following situations, as they pose a threat to the mother’s life:

- uterine rupture
- absolute foetopelvic disproportion with no possibility of instrumental extraction
- malpresentation that cannot be turned
- severe, uncontrolled antepartum bleeding
- a history of three or more C-sections in the past.

A C-section should be scheduled at 39 weeks if the women has:

- a history of uterine rupture
- a history of C-section with vertical incision or more than two C-section births
- transverse foetal lie
- visible herpes lesions at the time of birth.
COMPLICATIONS

Complications of a C-section include:
• post-partum haemorrhage
• difficulty extracting the foetus
• bladder injury
• uterine tear
• foetal trauma
• infection of the lining of the uterus (endometritis)
• infection at the surgical incision site
• blood clots
• reaction to anaesthesia.

NURSING CARE

Preoperative care
• Ensure that consent is gained and a consent form is signed.
• Ensure the anaesthetist reviews the woman prior to surgery.
• Complete all preoperative checks as per Guideline 11, on preoperative care.
• MSF recommends the use of routine prophylaxis for gastric acid aspiration: 200 mg of cimetidine orally 20 minutes in advance (for elective cases only, not in an emergency situation).

Perioperative care
• Carry out standard surgical skin preparation. Cleanse the surgical site with an antiseptic (povidone-iodine or chlorhexidine).
• Cleanse the vaginal area with povidone-iodine immediately before the C-section to prevent endometritis as per the World Health Organization’s 2015 recommendations.
• Insert a urinary catheter.
• Give routine antibiotic prophylaxis as charted (2 g of cefazolin stat slow intravenous administration 60 minutes before skin incision).

Immediate post-operative care
See Guideline 13, on post-operative care, for routine post-op care.

Monitor the mother and newborn every 15 minutes for the first two hours, then every hour for four hours, then every four hours if all appears stable. Assess and record the following:

Mother
• Take the mother’s temperature, pulse, blood pressure, respiration rate and oxygen saturation levels.
• Check for vaginal bleeding or any clots.
• Check the wound site for bleeding/infection.
• Check for signs of infection or sepsis.
• Check for fits/convulsions or a rise in blood pressure.
• Check the fundus: It should be firm and hard. If it increases in size, it could be a sign of bleeding.
• If the mother develops headache, dizziness or vision disturbance, call the doctor immediately.

Newborn
• Check the newborn’s breathing, colour and warmth.
• Check if the newborn is alert/awake or drowsy.
• Check for any bleeding from the umbilical cord.

Respond to any abnormalities found and call the midwife/surgeon/obstetrician to review.
Post–op care (mother)
- Give analgesia as charted (usually a combination of paracetamol, ibuprofen and tramadol as needed). Diclofenac 75 mg (intramuscular) should be given twice daily in the first 24 hours, except if the patient is hypertensive or renal-compromised.
- Give intravenous fluids as charted.
- Give antibiotics as charted by the surgeon.
- Ensure the patient passes urine within six hours or that the urinary catheter drains.
- Assist with personal hygiene.
- Check when the patient can tolerate oral fluids and then give oral fluids as well as a light diet.

Post-natal care (mother)

Elimination
- Keep the urinary catheter for 12 to 24 hours.
- Monitor urine output.
- Maintain a fluid-balance chart.
- Encourage a high-fibre diet to prevent constipation.

Wound care
- The initial dressing should be kept intact for 24 to 72 hours before changing.
- Check the outer wound dressing every shift. Note any bloody ooze or signs of infection.
- Keep the wound dressing dry and intact. Change when requested by surgeon.
- Carry out a review of systems in seven days.
- Check vaginal loss every shift. Note the colour, amount and smell.

Hygiene
- Help the patient shower or wash.
- Ensure no intravaginal cleaning is performed.
- Provide sanitary pads, if needed.
- Keep the wound site dry.

Mobilization
- Encourage early mobilization, from day 1 post–op.
- The physiotherapist is to assist with mobilization.

Supplements
- Treat and prevent anaemia.
- The patient should take iron and folic acids for three months.

Breast feeding
- Encourage the mother to begin breastfeeding straight away.
- If the newborn has difficulty latching on, ask the midwife to help/teach the mother.
- Monitor the newborn for drowsiness (if the mother is taking analgesia).

Mental health and psychosocial support
- Encourage the family to the support the mother.
- If no family member is present or the mother is struggling, ask mental health and psychosocial support staff to provide emotional support.

Documentation
- Ensure the birth is registered.
- Document actions, complications, vital signs, etc. in the patient notes.
**Discharge**

- Give an information sheet upon discharge.
- Refer the mother to family-planning/contraceptive services if needed.
- Educate the mother on hygiene and nutrition.
- Advise the mother to seek post-natal care at an appropriate facility at day 3, day 7 to 14, and six weeks after birth.

Advise the mother to take her newborn for immunizations.

**SPECIAL CONSIDERATIONS**

**Management of post-partum haemorrhage (PPH)**

Early PPH is blood loss exceeding 500 ml that occurs within 24 hours of delivering the placenta. This is an emergency, and the nurse must call for help immediately.

Follow MSF *Essential Obstetric and Newborn Care* page 160:
- management of PPH in the first 30 minutes – Table 8.1
- management of persistent haemorrhage after the first 30 minutes – Table 8.2.

Please print these tables and have them available and accessible on the ward for quick guidance.

**LINKS**

Health wiki: Reproductive, Maternal and Newborn Health Document 2019 (under development at the time of publication)

**REFERENCES**


ICRC NURSING GUIDELINE 39

CARING FOR THE DYING AND DECEASED

OVERVIEW

The World Health Organization defines palliative care as “the prevention and relief of suffering of adult and paediatric patients and their families facing the problems associated with life-threatening illness” (2018).

Palliative care is medical care that aims to relieve a person’s suffering, addressing the physical, psychological, social and spiritual needs of patients and their family. Palliative care treats the symptoms of a disease and the side effects of treatment. It should provide dignity and comfort. Caring for patients who are dying is an essential part of the nurse’s role. The patient needs extra care and attention, and their family also needs support. They must be treated with respect according to their cultural/religious beliefs.

OBJECTIVE

To ensure the nurse is able to provide high-quality palliative care, ensuring the patient is comfortable and pain free and their values and beliefs respected.

ASSESSMENT

Signs that a patient could be reaching the end of life include:
- increased sleeping
- decreased consciousness or coma
- loss of appetite and thirst
- decreased urine output
- decreased bowel activity
- weak and slow heart rate
- drop in blood pressure
- slow, shallow breathing
- cool skin
- cyanosis.

Breathing eventually stops, and the heart stops beating.

MANAGEMENT

Allowing a patient to die in comfort with privacy, dignity and respect is very important for the patient, their family and their caretakers. It can be very challenging and emotional for staff as well as demanding and time-consuming.

The United Kingdom’s National End of Life Care Programme recommends health staff follow core principles for delivering end-of-life care, including the following:
- Treat the patient with dignity and respect.
• Provide information and support to families and carers.
• Respect individual spiritual, religious and cultural needs.
• Control pain and other symptoms.
• Provide care after death.
• Ensure the environment is safe and comfortable (Dougherty and Lister, 2015).

The following needs should be met by the nurse:

Physical needs
1. Keep the patient comfortable and pain free
   • Give regular analgesia (intravenously or subcutaneously).
   • Provide pressure-area care every two hours.
   • Ensure the patient is comfortable in bed, with pillows and blankets.
   • Provide massage.
   • Give bed baths; keep the patient clean and dry.
   • Provide mouth care.

2. Control nausea and vomiting
   • Give anti-emetics intravenously as needed.
   • Clean patient if they vomit and provide mouth care as necessary.

3. Reduce respiratory secretions
   The patient may develop noisy or bubbly breathing which is fluid building in the lungs.
   • Hyoscine can be administered subcutaneously under prescription to dry out secretions.
   • Change the position of patient to alleviate breathing difficulties.
   • Provide gentle suction if needed; take care, as this can be painful or cause distress.

4. Treat restlessness
   In the last 48 hours, the patient may become agitated, delirious, confused or restless.
   If necessary, diazepam or a similar drug can be administered under prescription.

5. Improve breathing
   The patient may experience breathing difficulties.
   • Oxygen can be given.
   • Sedation can be given, as prescribed.
   • Low-dose morphine can be given, as prescribed.
   • Open windows and let fresh air into the room, ensuring a comfortable room temperature.

Emotional needs
• Ensure close observation of the patient and be sensitive to their changing emotional needs.
• Ensure a member of the care team with suitable skills is allocated to their care.
• Ensure a calm, quiet and private environment.
• If appropriate and available, request mental health and psychosocial support for the patient and/or their carer.

Social needs
Allow one or two visitors free access to remain with the patient during this time.

Spiritual/cultural needs
• Be familiar with local customs and beliefs and facilitate the practice of end-of-life rituals as much as the confines of the hospital environment will allow.
• Allow a priest or other religious leader to visit.
• Respect the cultural practices of the patient and their family.
• Always remember to maintain the privacy, dignity and confidentiality of the dying patient.
Care for the deceased
When a patient passes way, do the following:
• Inform the head nurse and doctor.
• Ensure the death is verified by the doctor.
• Ensure the time of death recorded in the patient notes.
• Inform the patient’s family. This should be done in a private, quiet space and with a translator (if needed).
• Inform a local contact in the hospital.
• The death certificate is to be filled out by the doctor.
• Provide support to the family and help carry out their wishes in regard to the body.
• Wash and wrap the body according to the family’s cultural practices.
• Return the deceased’s possessions to the family.
• Check if an autopsy is required.
• Maintain privacy.

Death of an unidentified person
• It is important to identify the dead.
• If staff members are unable to identify the deceased, this responsibility will pass to the authorities.
  The personal effects of the deceased must be labelled and kept safely aside, as they may aid in the identification and could eventually be given back to relatives if they are identified.
• Record the death in the register.
• Follow the principles of caring for the deceased (above).

REFERENCES


ICRC NURSING GUIDELINE 40

CLINICAL MANAGEMENT OF VICTIMS/SURVIVORS OF SEXUAL VIOLENCE

OVERVIEW

Victims/survivors of sexual violence present to ICRC hospitals more often than is realized, as their suffering can be hidden owing to stigmatization and shame. It is important that all health staff members are sensitive to this and can recognize victims of sexual violence.

Every victim of sexual violence should have access to private and confidential consultation and appropriate clinical medical care performed by a skilled health-care provider. The physical and psychological consequences of sexual violence are averted or reduced with high-quality clinical management of victims, ideally within the first 72 hours following the incident.

Setting and requirements:
- Carry out the clinical management of victims of sexual violence according to the principle of “do no harm” at every level of care.
- Guarantee respect, safety, non-discrimination, confidentiality and privacy.
- Care should be given by a trained, eligible health-care provider. This will depend on the location (e.g. in some settings only medical doctors or only national staff are allowed to provide this service).
- Consider the gender of the health-care provider according to the country and circumstances.
- Guarantee anonymous documentation, registration and data collection.

OBJECTIVE

To reduce the physical and psychological consequences of sexual violence by providing high-quality care in the clinical management of victims, ideally within the first 72 hours following the incident.

MANAGEMENT

Medical care
- Ensure the patient has no life-threatening injuries such as severe wounds or haemorrhaging by performing a rapid primary survey (ABCDE) with the patient’s consent.
- Document the history of the violence and perform a clinical examination from head to toe, always with the patient’s consent. (See the ICRC’s Practical Guide on Reacting to Disclosure of Sexual Violence, under “Links”.)

---

6 People who have experienced sexual violence are often called either “victims” or “survivors”. There are a range of reasons to use each term; some prefer “victim” because it emphasizes that sexual violence is by nature wrong, while others see “survivor” as being more empowering. Because of the ICRC’s focus on preventing the worst excesses of war, our publications generally use “victim”, as this guideline does. However, it’s important to keep in mind that both terms are valid and patients who have experienced sexual violence may strongly prefer one or the other.

7 “Do no harm” means ensuring that our operations do not result in adverse effects for those we work with. In relation to sexual violence, this means ensuring patients’ safety and preventing re-traumatization (for example, by subjecting them to multiple interviews with service providers). Furthermore, to avoid stigmatization and labelling, the ICRC responds to sexual violence within a broader approach that addresses the needs of victims of all types of violence.
• Treat physical injuries or refer the patient for treatment (including genital–urinary trauma and/or traumatic fistulas).
• Provide prevention and treatment for sexually transmitted infections (including HIV, hepatitis B and syphilis).
• Vaccinate the patient against tetanus (anti–tetanus vaccine and/or anti–tetanus immunoglobulin).
• Provide access to emergency contraception/pregnancy test if requested or refer the patient for antenatal care for a continuing or pre-existing pregnancy.
• Provide basic psychological support within the consultation.
• Provide a medical certificate (to be signed by an authorized medical professional).
• Refer the patient for other psychological and psychosocial support services.
• Guarantee anonymous documentation, registration and data collection.

Additional services (according to setting)
• Collect forensic samples, according to the setting, project document and mode of action.
• Provide termination of pregnancy, according to the local legal framework.
• Connect the patient with a community network and other organizations in the field that refer victims of sexual violence and provide them with community support, if desired. (See the ICRC’s Practical Guide on Establishing Referral Systems for Victims/Survivors of Sexual Violence, under “Links”.)
• Identify a safe place for protection from the abuser if needed, e.g. for children or cases of domestic or intimate-partner violence.
• In general, encourage community members to make use of services through awareness campaigns, and reduce the risk of sexual violence via other assistance programmes and camp site-planning, providing security and lighting, etc.
• Provide support for social, economic and legal issues, with consent (undertake a stakeholder analysis).

Medical interventions, referral and continuity of care should be carried out according to the following table.

<table>
<thead>
<tr>
<th>INTERVENTIONS ACCORDING TO TIME OF CONTACT WITH PATIENT</th>
<th>Contact with patient</th>
<th>&gt; 72 hr after assault</th>
<th>72 to 120 hr</th>
<th>120 hr to 6 mo.</th>
<th>&gt; 6 mo.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Physical examination (gain patient’s consent)</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>2 Basic psychological support during medical consultation (active listening, empathy, always gaining consent, etc.)</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>3 HIV prevention: post-exposure prophylaxis for 28 days</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 Emergency contraceptive pill, single dose</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 Prophylaxis for sexually transmitted infections (STIs), single dose</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6 Tetanus prophylaxis: first dose or booster, according patient’s immunization card</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>7 Human tetanus immunoglobulin in case of dirty wound according to immunization status</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 Hepatitis B prophylaxis</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laboratory test (if available)</td>
<td>x</td>
<td>x</td>
<td>x</td>
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</tr>
</tbody>
</table>

| 9 HIV rapid test                                        | x                    | x                    | x           |              |        |
| 10 Pregnancy test                                       | x                    | x                    | x           |              |        |
| 11 Hepatitis B rapid test                               | x                    | x                    | x           |              |        |
| 12 Syphilis test                                        |                      |                      |             |              | x      |
### Interventions According to Time of Contact with Patient

<table>
<thead>
<tr>
<th>Contact with Patient</th>
<th>&gt; 72 hr after assault</th>
<th>72 to 120 hr</th>
<th>120 hr to 6 mo.</th>
<th>&gt; 6 mo.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Treatment</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13 Physical injuries</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>14 Pain management</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>15 STI treatment, e.g. syphilis</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td><strong>Referrals, continuity of care</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 Mental health and psychosocial support</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>17 Management of unwanted pregnancy, according to legal framework and availability</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>18 Antenatal care consultation in case of positive pregnancy test or existing pregnancy</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td><strong>Legal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19 Medical certificate, according to legal framework and national protocol</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

### Short Explanations of Medical Interventions

1. **Physical examination**

   Document the history of the violence experienced, and perform a clinical examination from head to toe, always with the patient’s consent. Be careful not to ask invasive or inappropriate questions.

2. **Basic psychological support during medical consultation**

   Victims of sexual and gender-based violence are often met with unfair judgement where they, not the perpetrators, are blamed for what happened to them. Besides the violence itself, such victim-blaming and other harmful attitudes inflict additional trauma, and they create and reinforce the stigma associated with such violence. That stigma in turn tends to create huge psychosocial barriers to seeking help for victims of sexual violence who may need life-saving services, including urgent medical assistance, out of fear of negative repercussions from their environment. It is therefore of critical importance that medical staff do their utmost to mitigate such fears and instead foster a supportive environment in which victims feel encouraged to access the services they need for their recovery. Each member of the medical staff should therefore provide basic psychological support along with medical consultation. As in every medical consultation, health professionals should show empathy and a non-judgmental attitude and practice active listening. In doing so, you create a safe environment and build trust. Before any physical contact, always explain what is about to take place and request the patient’s consent. A victim of sexual violence should never be forced to respond to questions or to accept physical examination. Such patients might need support to overcome immediate, mild psychological difficulties and to improve their immediate functioning. Moreover, the medical staff should: provide basic psychoeducation (e.g. providing information about specific psychological reactions and sharing positive coping strategies); normalize common psychological reactions to violence; and refer the patient for psychological support if they show acute need. Bear in mind that the use of a translator can hinder the progress of developing a therapeutic relationship between the health-care provider and the patient. It is important that translators are well trained in communicating with victims of sexual violence. It is also important to ensure the translator is of the appropriate gender; for example, it may not be acceptable to use a male translator for a female patient.

3. **HIV prevention**

   Provide post-exposure prophylaxis (PEP) with anti-retroviral drugs for 28 days, in accordance with national/World Health Organization recommendations for adults and children. PEP is recommended in the following cases, which present the risk of HIV transmission:
   - unprotected vaginal, anal or oral penetration
   - contact with body fluids such as sperm or blood
   - bites involving bleeding – the patient has bitten the aggressor or was bitten by the aggressor.
An HIV test is not mandatory before starting PEP.

**4. Emergency contraceptive pill to prevent unwanted pregnancy, single dose**

An emergency contraceptive pill should be given only with the consent of the patient if the risk of pregnancy exists, as with:

- vaginal penetration and ejaculation into the vagina or at the vulva
- unprotected penetration.

Note: if a pregnancy test is not available, the emergency contraceptive pill will not induce a miscarriage in a pregnant woman, and the foetus will not be harmed.

**5. Prophylaxis for sexually transmitted infections (STIs), single dose**

Even if a patient presents well after an assault, the proposed vaccinations and STI treatments should be ensured up to six months after the assault.

**6–7. Tetanus vaccine and/or human tetanus immunoglobulin**

A tetanus vaccine should be given according to the patient’s immunization status. Human tetanus immunoglobulin should be given in the case of a dirty wound and when the patient is incompletely immunized. In follow-up consultations, immunization should continue according to the tetanus vaccine calendar.

**8. Hepatitis B prophylaxis according to patient’s immunization status**

During follow-up consultations, immunization should continue according to the hepatitis B immunization calendar.

**9–12. Laboratory tests**

Tests for HIV, pregnancy, hepatitis B and syphilis are not mandatory.

Pre- and post-test counselling for HIV should always be given.

If an HIV and/or pregnancy test is positive, the health-care provider should refer the patient to appropriate services for continuity of care. If a pregnancy test is positive, the woman should be referred to antenatal care or to another service able to manage unwanted pregnancies, according to the local legal framework.

**13–14. Treatment of physical injuries**

The health-care provider should evaluate the patient’s physical condition and classify the severity of the injury in order to provide appropriate care and/or refer the patient elsewhere if necessary.

This includes:

- wound care (disinfection, sutures within 24 hours)
- follow-up on physical injuries: dressing, analgesics, antibiotics, human tetanus immunoglobulin
- checking for skin, vaginal, rectal, mouth injuries
- pain management
- evaluation and referrals
- care for life-threatening conditions (e.g. severe bleeding or severe wounds)
- referral to specialized care if needed.

For a vesical-vaginal and/or rectovaginal fistula, the patient should be referred to a previously identified service with a fistula programme. A specific referral form has been developed for this medical condition.

**15. Syphilis treatment**

If a test is available and positive, treat the patient according to protocol. Syphilis can also be diagnosed with a syndromic approach.
16. Mental health and psychosocial support
Medical health-care providers should always refer the patient for mental health and psychosocial support, no matter how long after the assault. See ICRC Guidelines on Mental Health and Psychosocial Support, chapter 4.

17. Management of unwanted pregnancy
According to the national legal framework and the stage of pregnancy, refer the patient to a health service performing termination of pregnancy on request. The legal framework should be analysed and services for referral identified.

18. Antenatal care consultation
If the patient was pregnant at the time of the assault or receives a positive pregnancy test during follow-up, refer them for continuity of care.

19. Medical certificate
According to the legal framework, provide a medical certificate (to be signed by an authorized medical professional).

Medical follow-up after sexual assault

<table>
<thead>
<tr>
<th>MEDICAL FOLLOW-UP AFTER ASSAULT</th>
<th>2 WK</th>
<th>3 MO.</th>
<th>6 MO.</th>
<th>ACTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examine injuries for proper healing</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Treat or refer if there are signs of infection</td>
</tr>
<tr>
<td>Check whether STI treatment is complete</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Give prophylaxis if not already given</td>
</tr>
<tr>
<td>Pregnancy test if indicated</td>
<td>x</td>
<td>x</td>
<td>If positive: refer for antenatal care for continuity of care or, according to the legal framework, refer to another service for management of an unwanted pregnancy</td>
<td></td>
</tr>
<tr>
<td>Remind the patient for hepatitis B and tetanus boosters</td>
<td>x</td>
<td></td>
<td>x</td>
<td>According to immunization calendar</td>
</tr>
<tr>
<td>HIV pre- and post-test counselling</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>If positive: refer to the appropriate service for continuity of care</td>
</tr>
<tr>
<td>Syphilis test if no prophylaxis given</td>
<td></td>
<td></td>
<td>x</td>
<td>If positive: treat according to protocol</td>
</tr>
<tr>
<td>Inform the patient about available mental health and psychosocial support if not done yet</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Assess the patient’s emotional health and refer for support if necessary</td>
</tr>
</tbody>
</table>

See below for the algorithm on the clinical management of rape survivors. Please print it out and put it on wards.

LINKS

Médecins Sans Frontières medical protocol for sexual-violence care

World Health Organization (WHO) Clinical Management of Rape Survivors (2019)

WHO clinical management of rape survivors e-learning programme – all nurses should complete this online course
https://www.who.int/reproductivehealth/publications/emergencies/9789241598576/en
ICRC Frame of Reference on Sexual Violence in Armed Conflict and Other Situations of Violence

ICRC Practical Guide to Reacting to Disclosure of Sexual Violence
https://communities.ext.icrc.org/docs/DOC-4258
- Animation on a survivor-centred approach: https://communities.ext.icrc.org/videos/2806
- Webinar: https://communities.ext.icrc.org/videos/2920

ICRC Practical Guide to Establishing Referral Systems for Victims/Survivors of Sexual Violence
https://communities.ext.icrc.org/docs/DOC-5159
- Animation: https://vimeo.com/472654155
- Steps: https://communities.ext.icrc.org/docs/DOC-5176
- Webinar: https://communities.ext.icrc.org/videos/3455

ICRC Using Cash and Voucher Assistance to Prevent and Respond to Sexual Violence
https://communities.ext.icrc.org/docs/DOC-5193
- Webinar: https://communities.ext.icrc.org/videos/3472
**TIMELINE FOR CLINICAL MANAGEMENT OF RAPE SURVIVORS**

**AT ALL TIMES**
- Survivors must have access to appropriate clinical care from a skilled health-care provider
- Consider the gender of health staff according to the location and circumstances
- Basic psychological support should be provided during medical consultation
- Confidentiality and privacy must be guaranteed

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**CONTINUITY OF CARE**

<table>
<thead>
<tr>
<th>Medical follow-up after assault</th>
<th>2 weeks</th>
<th>3 months</th>
<th>6 months</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examine injuries for proper healing</td>
<td>x</td>
<td>x</td>
<td></td>
<td>Treat or refer if there are signs of infection</td>
</tr>
<tr>
<td>Ensure STI treatment is completed</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Give prophylaxis if not given before</td>
</tr>
<tr>
<td>Perform pregnancy test if indicated</td>
<td>x</td>
<td>x</td>
<td></td>
<td>If positive: refer for antenatal care or, per legal framework, refer to other structure for managing unwanted pregnancy before 12 weeks after last menstrual period (LMP)</td>
</tr>
<tr>
<td>Remind patient about HepB and TT boosters</td>
<td>x</td>
<td></td>
<td>x</td>
<td>Give according to immunization calendar</td>
</tr>
<tr>
<td>Offer HIV test, pre- and post-test counseling</td>
<td>x</td>
<td></td>
<td>x</td>
<td>If positive: refer to appropriate service for continuity of care</td>
</tr>
<tr>
<td>Give syphilis test if no prophylaxis given</td>
<td>x</td>
<td></td>
<td></td>
<td>If positive: treat according to protocol</td>
</tr>
<tr>
<td>Encourage patient to seek MHPSS counseling if not done yet</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>Assess patient’s emotional health and refer if necessary</td>
</tr>
</tbody>
</table>

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ICRC NURSING GUIDELINE 41

MANAGING ACUTE MENTAL-HEALTH EMERGENCY SITUATIONS PRESENTING A SUBSTANTIAL RISK OF IMMINENT PHYSICAL OR PSYCHOLOGICAL HARM

OVERVIEW

Acute secondary health-care settings – such as surgical/weapon-wound wards in humanitarian emergencies due to armed conflict or natural disasters – are complex, busy and task-oriented environments that pose well-known challenges for health-care staff working to provide the best possible care. Under so-called normal circumstances in the West, an estimated 30 to 50% of patients admitted to acute health-care settings experience comorbid physical and mental illness. Health professionals are therefore in regular contact with patients who experience mental illness as a comorbidity to a physical condition. Many studies on the topic suggest that health professionals in these non-mental-health facilities experience the complex care of these comorbid patients as among the most challenging issues in their work. In a study in Greece, nurses identified the following critical incidents as the other most challenging and emotionally demanding situations: verbal and physical violence, and acute psychotic episodes.

Another complexity arises from the fact that, in many countries facing humanitarian emergencies, the general mental-health system is already poorly developed. Rarely is there the possibility of reaching a mental-health professional in a timely manner, which requires general health staff to handle these situations independently. Taking all these elements together, nurses must be as informed as possible so that they may handle acute mental-health situations safely and competently.

This chapter will discuss situations in which a patient’s recent or current behaviour presents a substantial risk of imminent physical or psychological harm to themselves or others.

Organic causes of altered mental status must be excluded (e.g. head injury, metabolic disorders, encephalitis). Before assuming there is a non-direct physical cause for the agitation/aggression, you should try to think of following somatic reasons as the main cause for the behaviour.

Medical causes include:
- high or low blood sugar
- electrolyte imbalance/dehydration
- malaria/tuberculosis
- sepsis
- hypoxia
- head trauma
- stroke.

Other causes include:
- pain
- fear/anxiety
- a history of abuse
- a history of trauma
- substance or alcohol abuse or withdrawal
- psychosis.
Triggers include:
- a new environment
- other patients who are agitated
- staff
- a busy/noisy environment
- any new infection.

**OBJECTIVE**

To ensure the hospital team/nurse can manage most patients with acute mental illness and prevent harm from occurring to the patient and others. It is important that the nurse can manage acute psychiatric conditions to ensure everyone’s safety.

**INTRODUCTION**

To provide the most adequate support to this troubled patient population, the ICRC follows a comprehensive, stepwise approach that emphasizes preventive measures in order to impede further escalation.

To be clear, the use of restraints means using force and must always be a measure of last resort to prevent imminent harm to the patient or others. This measure must only be used by health professionals in self-defence or in the defence of other people.

Means of restraint are security measures and have no therapeutic justification. Health professionals applying these measures must also be aware that, if the principles below are not respected, their use can amount to ill treatment prohibited under international and professional standards, and it can exacerbate harm or pre-existing discrimination, in particular against people with psychosocial or intellectual disabilities.

Any type of restraint and the rationale for its use should have a basis in law and be necessary as well as proportionate. Any restraint should be used for the shortest possible time, and a mental–health professional must be involved as soon as possible to initiate specialized treatment or referral to a specialized service. In addition, the patient should be informed of the sequence of actions which will be undertaken. By receiving information about what will follow, the patient can be more prepared and less anxious while maintaining maximum control.

Every use of restraints should always be expressly ordered by a doctor after an individual assessment and be clearly stated in the patient file, particularly if the doctor is not present at the facility 24/7.

Generally, any measure taken by a health-care professional requires informed consent. However, in a situation where there is a real, imminent threat of the patient hurting themselves or others, this principle can be overruled.

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8 For example, the International Covenant on Civil and Political Rights, Convention against Torture and Convention on the Rights of Persons with Disabilities.

9 Use of a restraint can be considered “necessary” only when all other non-violent measures have been exhausted, i.e. when other, less intrusive measures have been ineffective or would not achieve the objective of preventing or minimizing the substantial risk of imminent physical or psychological harm to the person or others. Use of the restraint must also be restricted to the minimum intensity necessary to attain that objective. Finally, use of the restraint must be temporally limited, i.e. only lasting as long as the circumstances making it necessary persist, and no longer.

Use of a restraint can be considered “proportionate” only when the benefits of its use (preventing or minimizing imminent harm to the person or others, gauged by the seriousness of the threat posed and the importance of preventing or minimizing such harm) are balanced against its anticipated harm (e.g. potential exacerbation of the individual’s mental state or negative longer-term impact on the relationship between the patient and the health staff applying the measure). If the anticipated harm outweighs the potential benefits, use of a restraint would be disproportionate.
ASSESSMENT – GENERAL

Central to any intervention is a risk assessment of the patient’s current mental state. Risk assessment and management is a complex process involving both objective data (such as the patient’s history and behaviour) and the judgement of the clinicians involved. There are only a few, if any, properly validated risk-assessment tools available and the clinical judgement of an experienced mental–health professional still plays the central role overall. Nevertheless, there is a set of recommendations that will help guide less-experienced staff carrying out a risk assessment (see “Management”, below).

One key element of any sound risk assessment is an open and in-depth dialogue between all members of the clinical team and other parties as appropriate, including relatives, care providers and the patient themselves. The other key element is that the risk assessment is a dynamic process that requires constant review. Ideally the members of a multidisciplinary team would always make decisions together; however, on many occasions (particularly weekends and evenings) decisions may have to be made by a doctor and the ward nursing team (or even the nurse alone). Such decisions should always be reviewed as soon as possible with more of the team.

ASSESSMENT – SELF-HARM/SUICIDAL IDEATION

The risk assessment for self-harming behaviour is probably among the most difficult tasks in mental–health care, as the wrong judgement can lead to death. As a result, staff often take more restrictive measures to avoid shouldering this burden.

Is all self-harm done with the intention of killing oneself? This question represents one of the most important elements to consider. The clear answer is no, but as in so many other critical issues there is sometimes a blurry line, the uncertainty of which places an emotional burden on the assessor. The two main categories of self-harm can be roughly expressed as:
1. self-harm with the intention to relieve emotional tension/discomfort
2. self-harm with the intention to terminate one’s life.

It is important to understand the different dynamics behind these two categories, as they play a crucial role in the risk assessment of a self-harming person. The first category can generally be seen as a poor/unhealthy coping mechanism. We are all familiar with moments in which we feel emotional pain that hurts so much that we just want it to stop. Almost all of us develop coping mechanisms that dictate how we act in such moments to alleviate the feeling, which can range from going running or meditating to getting drunk or using other psychoactive substances. In order not to judge others by your own experiences, you must be aware that emotional distress/tension is produced, perceived and experienced differently in each individual. While one person may be a bit sad when a friend is angry at them, another may enter into an emotional crisis; while one person will talk with other loved ones to handle the sadness, another person will withdraw and isolate themselves for a couple of days. A frequent indicator that you are dealing with an emotionally unstable person is that the care team is split – some are seriously concerned while others say that the person is just playing or pretending.

As mentioned before, determining whether someone is suicidal or not is a complex endeavour and includes many elements that need to be taken into account. In addition, it represents a time-consuming task, perhaps taking several hours for an adequate analysis. Whenever there is a mental–health professional at a reachable distance, this person should immediately be involved when self-harm has happened. That is the clear first step, and non-mental–health professionals are discouraged from trying it out because they think it is nothing serious and believe they can handle themselves.
MANAGEMENT

Caring for people experiencing periods of acute mental illness or distress is challenging and demanding – experiencing it must be even more difficult. Comprehensive care involves both ensuring the safety of the patients and those around them and offering therapeutic help and support. One without the other is incomplete. The risk is that services pay considerable attention to the safety component but much less to reducing harm to the patient in the most humane way. To ensure both, staff must feel valued and supported and given the time and skills to truly engage with the patient. The process must be a partnership approach between staff and the patient where the needs of the patient are recognized and respected. There is much one group can learn from the other; therefore open, regular and conducive communication between the two is indispensable.

Nurses are the most likely to be first in line when patients or their relatives become aggressive and possibly violent. Every nurse should develop skills in verbal de-escalation, both for the purposes of nursing and for their own protection. A five-minute de-escalation intervention before things get out of hand is by far the most preferable and least harmful choice for handling a potentially violent situation. In contrast, the use of physical restraints, which is traumatic for patients and emotionally burdensome for staff, should always be the very last resort. When faced with potentially imminent violence, the instinctive human response is fight or flight, but neither of these actions is suitable for the health-care setting, where nurses have a duty of care. Using the following techniques to deal with aggressive behaviour can usually turn the situation around and avoid a critical incident, which is the worst outcome for everyone involved (including bystanders).

It is critical that a self-harm/suicidal ideation risk assessment be done with a holistic view of the patient and their care; it should not be based only on the immediate circumstances.

Nevertheless, the best and most important measure is prevention, as every acute mental-health emergency is stressful, even if you manage in the best possible way.

A comprehensive approach to handle acute-emergency mental health situations should include the following elements:

1. prevention
2. prediction
3. de-escalation
4. increased observation
5. rapid tranquilizers
6. physical intervention
7. post-incident review.

1. Prevention
At the beginning of a project/programme you should examine the premises with the whole team and think through a situation in which you might be faced with a violent or suicidal patient. Try at the very beginning to put in place standard operating procedures that you can follow once you are faced with such a patient. Ideally there would be a room that could be used as a retreat or, worst-case scenario, for seclusion, isolation and even physical restraint.

The more you know about a patient, the better you will be able to predict the seriousness of a violent or self-harming act. As an example: If you notice old superficial scars on their arms or legs, which are usually straight and arranged in parallel to each other, you should be aware (and ideally have the patient confirm) that they have used shallow cutting to release emotional tension. This should be noted in the patient file and pointed out to the other health personnel dealing with the patient. Without having to do a professional personality analysis, you should be able to judge whether the person is calm and rational or rather impulsive and emotional by nature. Clearly, the second type deserves more attention and caution regarding self-harm as a means of relieving emotional tension. When doing ward rounds, these aspects should always be considered, and if there are signs of emotional distress, immediate preventive measures should be taken in line with that increased attention and caution. The more you know about your patient, the better relationship you have with them, and the more attentive you are to patients identified as being at risk, the less you will encounter acute situations. This significantly reduces the burden of such incidents on everyone involved.
2. Prediction

One of the main goals is to be able to predict when a person is on the way to becoming violent or self-harming/suicidal. The most valuable element is, as mentioned, knowing the patient. The better you know them, the better you will be able to recognize subtle signs that tell you something is not right.

Any change should raise your attention, as there is usually a reason for such changes (excepting the little daily swings that would be categorized as general behaviour). If a patient presents with depressive symptoms and you know that the person talks little and leaves the room only once a day, then you should be alert when the person doesn’t speak at all anymore one day or doesn’t leave the room even once. These little disturbances of a daily routine seem negligible, but many times they represent the first steps towards further deterioration.

Remember:
The best indicator is a change from regular behaviour.

If you have not had a chance to get to know a patient better or the person just recently arrived, below are some signs separated by category that should help better predict the level of danger.

Signs of stress
- Tense and angry facial expression
- Increased or prolonged restlessness
- Body tension
- Pacing
- Increased volume of speech
- General over-arousal of body systems, including increased breathing and heart rate
- Diluted pupils
- Muscle twitching
- Refusal to communicate
- Withdrawal
- Unclear thought process
- Verbal threats or gestures
- Prolonged or absent eye contact
- Poor concentration
- Delusions/hallucinations

Concerning self-harm, it is very important to know whether shallow cutting has been a way to relieve emotional tension or deeper cuts or other methods have been used in an attempted suicide.

Remember:
Preventive measures are the best intervention.

Signs of emotional-tension-relief acts
- Old, superficial scars
- A rather emotional and impulsive person
- A person who becomes restless, paces and speaks more in anticipation of an emotional situation
- A change in mood or expressed fear
- Behaviour that can appear theatrical

Signs of potential life-terminating acts
- Existing depression
- Withdrawal and isolation
- Diminished daily activity
- Discussions rotate around death and the desire to die
- Seeing no sense in continuing to live
• Expressing that it would be better if they were dead
• Expressing inability to endure the emotional or physical pain anymore
• No hope for the future or not engaging in any thoughts about future life
• Sentences like “I should have died instead of my son”
• Changes in wording (getting darker in content) and changes in behaviour (e.g. less interaction with others)

3. De-escalation
Concerning de-escalation, we need to look at three scenarios separately.

Aggression/agitation

a) Find a safe environment.
If possible, try to move the person away from other people to an environment where they can feel safe and you are also safe.

b) Position yourself correctly.
Stand in a position of safety – usually between the person and the doorway, but not directly in front of the door so that the individual still has an escape route. Our first reaction as nurses is to move towards patients, offering a comforting touch. However, respect for personal space is vital when dealing with aggressive behaviour, as the invasion of this space can increase the level of anxiety. Stay at least two arm’s-lengths away from the person. This also puts you out of reach of assault by either hitting or kicking and gives you space to evade or ward off an actual attack.

Avoid facing the person in a full-frontal position because this is an aggressive stance and might be interpreted as confrontation. Stand slightly to the side and at an angle. Adopt a relaxed posture, arms at your sides with your hands open and facing the person. One to 1.5 metres is generally a good distance to stay at.

c) Be calm and respectful.
The aggressive person who has lost control over rational thought is more attuned to non-verbal cues than to what you might be saying. Even though, on the inside, you might feel terrified or ready to lash out, you must maintain a calm demeanour through your gestures, facial expressions, movements and (especially) tone of voice. Through eye contact and non-threatening body language, demonstrate that you are giving the person your full attention and are interested in their problem and not another threat.

d) Use principles of therapeutic communication.
Listen intently to what the person is saying, including for what the real reason for the individual’s behaviour might be. Listen to the feelings behind what the person is actually complaining about. A relative might lash out at staff because of underlying fear and concern for a loved one. If possible, allow verbal venting, as this is often when the actual issue becomes evident.

Validate the person’s feelings by demonstrating through your response that you can imagine how they feel.

Show non-judgemental acceptance and respect. Although you might believe that the person’s feelings are not valid, they are very real to the person. Allow pauses to occur because this will lower the level of confrontation as well as enable the person to think about their response.

Reflect the person’s words back by summarizing and expressing what you believe the person has said and then allowing them to confirm or explain further. This shows that you want to really understand the situation so that the problem can be addressed.

Ignore slights against the health-care centre or you personally, such as “who do you think you are to tell me that”. Responding defensively will only lead to arguments. Lead the conversation back to the central issue at hand. You are the wise one in these moments!
Once the situation has been defused and the person is calmer, rational communication will be possible. The next step is to try to find an acceptable resolution to the problem. Set clear limits, provide necessary information concisely and, where possible, offer choices that will give the person some sense of control over the situation. A break of five to ten minutes to relax before re-engaging could help create a conducive environment. This process should be attempted several times before escalating to the next step.

**Non-suicidal self-harm with an emotional–impulsive person**

When dealing with an emotional and impulsive person, your main aim should be to balance their emotionality and provide alternative coping mechanisms to self-harm. It is crucial to get the patient’s agreement that they will alert the nurses when they feel emotional tension rising. Usually you would develop an individual toolset dependent on the severity level, which the person can use in order to reduce tension. As many of these normally include activities that demand personal initiative and proactivity, patients who have been operated on and are physically limited in a secondary health-care facility, will unfortunately depend on the active support of health staff or relatives in these moments.

Follow these general steps:

1. **Listen and try to understand what is going on**
2. **Try to reduce/eliminate distress**
3. **Give tranquilizing medication**
4. **Carry out protocol-led close, frequent observation**
5. **Use physical intervention**

* Depending on your time, numbers three and four can be reversed. If you are not too busy, you may decide to increase observation before giving medication. If you are very busy, you may choose to medicate earlier, before you miss an escalation in the patient’s behaviour owing to less time for close attention.

The first level of de-escalation should always include listening and trying to understand what is going on. To get a good understanding it is crucial to distinguish between something chronic, something new and something that happens every once in a while.

Once you understood the main reason for the current increase in emotional tension, try to eliminate it. If you cannot, you should try to identify other possible strategies for self-soothing. There is nothing that works for everybody. It is much more important to identify what coping mechanisms the person has used and that work for them. Listening to music might help one person, while it might cause others to fall into deeper melancholia and disturbing rumination. Television might be a good distracter, if they like watching it. Techniques like dropping lemon drops on your tongue aim to induce a strong physical sensation might distract you from focusing on your emotions. Other senses, such as smell, can also help. Relaxation techniques such as progressive muscle relaxation can be very useful and should be used if someone in the team is educated in them.

In general, your main aim at this stage is to overcome a difficult moment. There is a good chance that, after a while, the person will pass the emotional peak and overcome the situation as time passes and they get distracted or calm down after the cause of their distress has been eliminated.
4. Increased observation: Self-harm with suicidal intent
If you are faced with a person who wants to commit suicide, your first step is usually to increase your observation frequency and position the person where you can keep a constant eye on them. If that is not possible with existing resources, you should always consider having a family member watch them or hiring a daily worker or student in order to avoid scaling up to the last resort of physical restraint. Investment at this stage is worth it, considering the mental harm entailed by reaching the next stage.

5. Rapid tranquilizers
If you cannot eliminate the distressing factor and the mechanisms above do not work, you may offer a tranquilizing medication, especially considering our resource-limited environment. There is generally nothing wrong with using, for example, a benzodiazepine to help someone overcome an emotionally troubling moment just as it can be used for inducing sleep in cases of insomnia. It is important to be aware that benzodiazepines have a high potential for addiction. Therefore, they should be used only when necessary, and, above all else, the patient must be informed of this danger and reduce or stop the medication as soon as it does not seem necessary anymore.

How long can you administer a benzodiazepine before a person develops an addiction? There is no clear cut-off, and this threshold usually depends on many individual characteristics. A very safe estimate: With constant use of short-acting benzodiazepines, such as midazolam, addiction symptoms can appear after one to two weeks. With the usually used longer-acting benzodiazepines, such as diazepam or lorazepam, this timeframe expands to one to two months or more.

Giving a benzodiazepine for a week should not worry you much. The consequences of not being able to calm somebody down can be much more severe than the use of a medication.

Using a benzodiazepine for a week will not create addiction. But if a patient keeps demanding it, be careful and discuss with the team how to taper off the medication slowly.

**Scenario 1: The patient accepts oral medication**
The best option you have is a benzodiazepine.

Lorazepam: Start with 1 to 2 mg, depending on the level of agitation. If you see no effect after 20 to 30 minutes, try another 1 to 2 mg. You can go up to 8 mg per 24 hours.

If the agitation is already extreme, gets worse or includes psychotic symptoms like delusion or hallucinations, start or switch to haloperidol; give 5 mg. If after 20 to 30 minutes you see no or minimal effect, give another 5 mg. You can go up to 100 mg orally per 24 hours.

You can use another anti-psychotic instead, such as risperidone (in the ICRC’s list of medications).

Start with 1 to 2 mg, depending on level of agitation. You can go up to 8 mg per 24 hours.

**Scenario 2: The patient refuses to take medication and does not calm down**
In this case you will have to switch to an intramuscular injection. The best option you have is 5 mg of haloperidol. If after 20 to 30 minutes you see no improvement, give another 5 mg injection. You can go up to 60 mg per 24 hours.

When you are faced with chronic underlying aggression, your best option is risperidone, 1 to 2 mg per day. You can distribute the dosage into morning and evening doses, depending on the daily cycle of the aggression.

The most humane way to give an injection and ensure minimum harm is for five people to immobilize the person – one for each limb and one holding their head. A sixth person must administer the injection.
6. Physical intervention

Physical interventions, like holding back a person, injecting medication against their will or applying physical restraints like handcuffs, should be the last resort, used only in case of emergency, after all the previously described measures have been exhausted and when there appears to be an imminent threat of harm to the patient or others.

The use of force in self-defence or in defence of others must be necessary and proportional. That means the measures must be reasonable given the circumstances and must be used to the minimum degree necessary to prevent harm. Physical interventions need to be followed by appropriate documentation that describes the situation and justifies the intervention in terms of necessity and proportionality.

In addition...

- The use of restraints must adhere to local and hospital policy and you should check what the law in the host country is. If there is none, make sure to write down standard operating procedures that provide for all available alternatives to using restraints and detail with precision the exceptional circumstances and modalities, including regular review, under which restraints may be used for the shortest possible duration. Staff members must receive proper training before applying physical restraints.
- The reason for and process of using restraints must be explained to the patient and their family
- Wrist and ankle restraints can be used with padding. They should be released every two hours, and the patient’s skin and neurovascular status must be checked.
- Document the use of restraint in patient notes.

Physical restraint is the final stage of escalation, where you would feel acutely uncomfortable leaving the person alone. During the day, there is the possibility of wrapping up a person in a bed sheet. Wrapping agitated people in a sheet- or towel-like fabric can lead to a quick reduction of agitation. Once you have reached this stage, you probably have already admitted tranquilizers. In order to ensure the containment of a severely agitated patient, they should usually be given an accompanying medication (either orally, if possible, or per intramuscular injection) up to the level of risperidone (orally) or haloperidol (intramuscularly). During the night, you might need to use hospital bed handcuffs, which should have protective/soft insides. Though it is a horrible image, in these moments it is probably the most humane, feasible and protective option.

Never forget that physical restraint is always the last option, when all other options have been exhausted without the patient improving.

7. Post incident review

It is crucial to sit down together with the whole team and go through the incident, identifying positive and negative elements. It is equally crucial that these discussions not end up in blame being placed; rather they should be approached with the desire to improve, and to identify what should be changed so as to avoid making the same mistakes in the next critical incident. There are seldom perfect incident procedures, and there will always be room for improvement. If you start blaming each other inside the team, you will not reach a satisfactory consensus of how to handle these difficult, complex moments.

LINKS

Advanced Life Support Group training course on acute psychiatric emergencies
REFERENCES


Internal document: ICRC, Management of risky patients at the CMHC, Beirut, April 2019.

Internal document: ICRC, Protocol for ICRC patients identified as high risk to self and/or others, June 2019.

ANNEX

Signs of depression include:
- low mood/sadness
- emotional flatness – not reacting emotionally to any situation
- lack of interest in daily activities
- no joy in anything anymore
- disturbed sleep
- disturbed appetite – gain or loss of weight
- fatigue
- low energy levels – psychomotor inhibition/slowness
- feelings of worthlessness
- severe feelings of guilt
- difficulty in concentration and memory
- hopelessness
- no future prospects.
DEALING WITH TOXIC CHEMICAL HAZARDS AND UNEXPLODED ORDNANCE

OVERVIEW

The Weapons Contamination (WEC) Unit is a specialized team within the ICRC that deal with conventional and non-conventional weapons:

- **conventional weapons**: unexploded ordnance (UXO), rocket-propelled grenades (RPGs), land mines, etc.
- **non-conventional weapons**: chemical, biological, radiological and nuclear (CBRN) agents.

OBJECTIVE

To ensure all hospital staff members have an awareness of and can undertake the basic mitigation procedures in case of threat from a CBRN incident and/or of a patient with an entrapped UXO.

ASSESSMENT/DESCRIPTION

CBRN agents

Depending on the agent and circumstances of exposure, these can cause severe illness or death. A CBRN incident is often associated with the CBRN hazard spreading into the environment; therefore, reducing the spread and cross-contamination is essential.

- Chemical agents: toxic chemical substances that are natural or man-made, e.g. cyanide, chlorine, mustard gas, sarin
- Biological agents: pathogens, i.e. bacteria, fungi, viruses, that can cause infections, toxicity and allergy
- Radioactive agents: materials produced as waste from the environment or from medical/mineral/industrial waste
- Nuclear agents: radioactive materials released from nuclear weapons or nuclear power plants

UXO and RPGs

Injuries resulting from UXO and RPGs are usually fatal, can cause large blast injuries and, if embedded in someone’s body and still active (i.e. entrapped), pose a serious risk to health workers as well as the victim.

MANAGEMENT

Patients with an entrapped RPG/UXO:

- Do not bring the patient into the hospital.
- If the patient comes in a car or ambulance, leave them in the vehicle and ensure the vehicle is parked far away from the hospital, at least 300 m.
- If the patient is walking, accommodate them in a room or area at least 300 m away. The room should have concrete walls; if this is not available, the area should be surrounded by sandbags.
- Call the ICRC WEC expert in the country if possible. If not, call the ICRC regional WEC expert, and if possible also call the local explosive ordnance disposal team/army/police.
• Phone waves could trigger the latest generation of bomb fuses. Never use a phone near UXO. Turn mobile phones to airplane mode and take a few photos of the front and back of the device. Once you have removed yourself to a safe distance from the patient and it is safe enough to reactivate the phone, send the photos to the WEC expert.
• The WEC expert will be able to tell from the photos whether the device is active or not and will inform you about what safe procedures to adopt.
• If the device is not active and the WEC expert advises that it is safe, insert an intravenous line; give intravenous fluids, analgesia and antibiotics; then leave the patient but continue to have visual contact with them from a safe distance (so they can communicate if needed).
• Only one person should attend to the patient.
• The surgeon and anaesthetist together with the WEC expert will need to surgically remove the device under a general anaesthetic to prevent the patient from moving. After the induction of general anaesthesia and once the patient is on the ventilator (if available), the anaesthetist should leave the room to reduce the number of staff members exposed to any risk. Once the device has been removed, patient care can continue as normal.
• The WEC expert will take charge of the device and safely remove it from the hospital. If the WEC expert is not physically present in the hospital, they will give advice over the phone on how to manage the device post-operatively. It is important to remain in constant contact with WEC during the entire process.
• If the patient’s condition is life-threatening and the device is active, you cannot touch the patient. Do not attempt CPR or defibrillation, as any movement will activate the device. The patient must be left alone, even if this is fatal. The danger to everyone is too great to attempt heroic gestures.
• In all cases, remain calm, consult with WEC immediately and follow their advice.

Patients presenting to the hospital after a CBRN attack:
• Do not bring the patient into the hospital or ward.
• Do not touch the patient.
• If available send the patient to the decontamination shower; if this is not available a normal shower or bucket with water and soap is sufficient. Ensure they have soap.
• Instruct the patient to remove all clothes and underwear.
• Use appropriate personal protective equipment to safely dispose of contaminated clothing per the advice of the WEC expert.
• Instruct the patient to wash with soap and water all areas of their body, including skin folds, genitals and hair. Instruct them to tilt their head back in order to protect their eyes and airway.
• Once the patient has showered, you must check their skin pH: Get a urinalysis dipstick and ask the patient to place it on their skin. The pH should be above 7.2; if the pH is under 7.2, the patient needs to shower again.
• In a life-threatening situation, the patient cannot shower and therefore remains contaminated. The patient cannot therefore be touched by staff, and this usually means that their condition is fatal.
• If a nerve agent was used, check whether an antidote is available – atropine and pralidoxime is the antidote for all nerve agents.
• For a cyanide attack, check whether the facility has a cyanide antidote kit. The patient will die quickly without the antidote.
• There is no antidote for chlorine or mustard gas. The patient needs to have a decontamination shower, and then the nurse should provide supportive care.

SPECIAL CONSIDERATIONS

Nurses are not able to deal with these cases safely and require specialist WEC training.

If suspected CBRN cases arrive, the receiving nurse must report immediately to the head nurse or hospital manager, and WEC must be contacted immediately.
There is specialized CBRN training and training on how to wear CBRN suits/masks. All staff members likely to receive CBRN patients must undertake this training before caring for these patients.

**LINKS**

Centers for Disease Control and Protection *Chemical, Biological, Radiological, and Nuclear (CBRN) Respiratory Protection Handbook*


**REFERENCES**


Discussion with Dr M. Dalla Torre, medical adviser, ICRC WEC Unit, October 2019
ICRC NURSING GUIDELINE 43

VIOLENCE AGAINST HEALTH CARE – WHAT IT IS AND HOW TO DEAL WITH IT

OVERVIEW

This guideline will help you understand what violence against health care is and how you can deal with it. The most important steps to follow are to adhere to your professional health role, respect and follow the ICRC’s security rules and be familiar with and confident in practicing safe behaviours when in a potentially violent situation.

OBJECTIVE

To provide a basic understanding of violence against health-care facilities and personnel, and guidance on developing protective behaviours to safeguard against such incidents.

DESCRIPTION

Violence against health care may take different forms and happen in different settings, such as:

- verbal threats or intentional use of force, with or without the presence or use of guns or other weapons, against health-care personnel or patients
- deliberate delay in the passage of health-care vehicles or personnel as well as the passage of patients and accompanying relatives searching for health care
- looting or pillaging hospitals and other health-related structures and vehicles; stealing materials, drugs and other items
- bombing or destruction of health-care facilities
- kidnapping, wounding or killing health-care personnel or patients.

Although all of these events are considered violence against health care – targeting and exposing health-care personnel and patients as well as reducing the capacity to provide health care – they may have different implications depending on the context.

In situations of armed conflict, violence perpetrated by the parties to the conflict (either State armed forces or non-State armed groups) against health-care providers delivering health care is considered a violation of international humanitarian law because health-care facilities, providers, patients and vehicles are specifically protected under international humanitarian law.

Nevertheless, in places where there is no armed conflict, health-care providers, facilities, patients, etc. are protected under international human rights law, as it is the right of all people to access non-discriminatory, adequate and timely healthcare.
MANAGEMENT

1. **Know your rights and responsibilities as a healthcare professional.**
Always respecting medical ethics, you should be attentive to maintaining a non-discriminatory and impartial posture, respect the confidentiality of the information you receive and apply humanitarian principles in your work. You should also have a continuous dialogue with the community to make sure that health care is well accepted and that everyone understands what is being done at the health facility.

Being open for feedback, with a respectful attitude towards patients and their families, is important not just for health care provision but also for developing safer working environments.

If you need more information, please consult *The Responsibilities of Health-Care Personnel in Armed Conflicts and Other Emergencies*, available on the Health Care in Danger page on the health wiki.

2. **Be aware of the security rules in your workplace.**
Make sure you understand and respect all security rules and that you correctly advise other team members to comply with those rules. If your workplace does not have a security-management procedure, raise this with the hospital project manager.

3. **Inform yourself and other colleagues on safe behaviour.**
It is important to know the contingency and communications plan of your workplace and to understand your role in that plan. Familiarize yourself with safe rooms, safe exits and evacuation procedures, and always have available at least two different modes of communication ready for use (a radio and a mobile phone, for example). Ensure all new members of the team have an in-depth awareness of the contingency and communications plan.

If there is a security incident at your workplace, remember and execute the necessary actions in the contingency plan to avoid panic.

As a general rule, if you are threatened by someone carrying a weapon or receive other threats of violence, do not engage in confrontational behaviour, make no sudden movements, remain calm, and speak calmly, quietly, slowly and respectfully. Maintain a neutral body posture, make no sudden gestures, be aware of cultural requirements (for example, females must not make eye contact with males in certain cultures) and try to listen and understand the issue at hand. It could be that the armed person is a distressed relative, in which case the situation may be defused through drawing on professional nursing experience and particularly through listening and showing sympathy via verbal and non-verbal communication. If possible, during or as soon as possible after the event, contact your security focal point, hospital project manager and/or other colleagues.

For shootings and other dangerous situations, please refer to *Staying Alive*, available on the Health Care in Danger page on the health wiki.

4. **Know the focal point for reporting security incidents.**
Ensure you know to whom you should report all security incidents. Usually it is the hospital project manager, who will then pass on the information to the delegation and make sure that security incidents are reported, recorded and responded to as soon as possible.

5. **Communicate.**
Make sure information is consistently shared about the security environment in the workplace, the journeys to and from work, and the community. Ensure all health staff members (local, resident and mobile) have the opportunity to raise any concerns with the hospital project manager about the contingency and communications plan and measures in place to reduce the risk of violence, as well as other ideas they may have to better protect all staff, patients and facilities from the risk of violence.
6. Seek and give support if a violent incident occurs

It is important to debrief afterwards – in the first instance with sympathetic colleagues and then with the staff health delegate (if present in the delegation) or the staff health psychologist at headquarters (via gva_hr_medical@icrc.org or +41 22 730 2000). Everyone has different reactions to such an event. It may even be a delayed reaction, appearing several weeks later. Keep a close eye on your colleagues who have experienced such an event and be ready to support them. It is important to ensure all those affected receive the appropriate level of support in a timely fashion.

7. Take other preventive measures.

There are other measures that can be taken to increase the general public’s awareness of the protected nature of health-care facilities and staff, such as launching communications campaigns on social media, radio and TV, and placing “no weapons” signs on all health-care facilities and vehicles.

Regular awareness-raising sessions in the hospital about the ICRC’s work can also be helpful to ensure a good understanding of the organization’s Fundamental Principles.

Health facilities should be regularly reassessed to ensure strong security measures remain in place.

RESOURCES

Health wiki
www.healthcareindanger.org

Staff health: gva_hr_medical@icrc.org or +41 22 730 2222
The ICRC helps people around the world affected by armed conflict and other violence, doing everything it can to protect their lives and dignity and to relieve their suffering, often with its Red Cross and Red Crescent partners. The organization also seeks to prevent hardship by promoting and strengthening humanitarian law and championing universal humanitarian principles. As the reference on international humanitarian law, it helps develop this body of law and works for its implementation.

People know they can rely on the ICRC to carry out a range of life-saving activities in conflict zones, including: supplying food, safe drinking water, sanitation and shelter; providing health care; and helping to reduce the danger of landmines and unexploded ordnance. It also reunites family members separated by conflict, and visits people who are detained to ensure they are treated properly. The organization works closely with communities to understand and meet their needs, using its experience and expertise to respond quickly and effectively, without taking sides.