WHO Emergency & Essential Surgical Care:

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WHO Emergency & Essential Surgical Care (EESC) Program

Ensure Safety & Efficacy of Clinical Procedures in Anaesthesia, Surgery, Orthopaedic, Obstetrics
Surgical Care in Global Health Agenda: Millennium Development Goals

800 women/day die from preventable causes related to pregnancy & childbirth; 2010 (287,000 deaths)

70% of maternal deaths: severe bleeding, infections, unsafe abortion, hypertensive disorders

50,000 to 100,000 women/year develop obstetric fistula

Fact sheet No. 348 May 2012
Surgical Care in Global Health Agenda

- **Road traffic injuries** kill nearly 1.3 million /year
  Top 3 causes of death in 5 to 44 years
  Approximately **90%** of these deaths occur in LMICs

- **424 000/year die from falls of which over 80% are in LMICs**
  - 2nd leading cause of accidental/unintentional injury deaths
  - 65 years or older suffer greatest number of fatal falls
  - 37.3 million falls/year are severe enough to require medical attention

- **Disasters:** Failure in health services /health systems
  - Obstetrics / Trauma
  - Other surgical conditions

Fact sheet N°358 September 2012
Fact sheet N°344 October 2012

WHO (2009) Global status report on road safety
Surgical Care in Global Health Agenda

- **Eye conditions**
  120 million are visually impaired because of uncorrected refractive

- **Cancer**
  7.6 million deaths (around 13% of all deaths) in 2008

- **HIV, Infections**
  (clinical procedures safety protocols)

- **Female Genital Mutilation**
  About 140 million are living with consequences of FGM

- **Tropical disease: Buruli Ulcer; Filariasis**

- **Diabetes**
  (foot ulcers, toe foot amputation)

Surgical conditions account for 11% Global Burden of Disease

Fact sheet N°241 February 2012; Fact sheet N°312 September 2012
WHO Global Initiative for Emergency & Essential Surgical Care (GIEESC)

846 members, 96 countries: 6 WHO Regions

- Global Forum for Multidisciplinary Stakeholders: Health authorities, academia, professionals, societies, international organizations, NGOs
WHO Global Initiative for Emergency & Essential Surgical Care
Access to Surgical Care towards Universal Health Coverage

• Collaborations & partnerships:
  – Research
  – Education and Training
  – Innovative low cost technologies to meet local needs
  – Centers of excellence: north-south; south-south

• WHO Global biennial meetings:
  – 2013 Trinidad & Tobago, 14-15 October
WHO Emergency & Essential Surgical Care: Capacity building

- Basic Emergency Equipment
  non-functioning, mismatch of technologies, procedures, skills for the level of health facility

- Sub Saharan Africa carries 24% of the global burden of disease, but has as little as 3% of the world’s health workers
  – Specialists lacking
  – Skilled Health Providers inadequate
  – Training is inadequate

- World Health Resolution 2006
  Rapid scale up of health workforce is required

WHA resolution 2006
WHO Integrated Management for Emergency & Essential Surgical Care (IMEESC) toolkit

WHO Standards for Improving Surgical Care Systems

• Target Audience
  • Policy-makers
  • Managers
  • Health providers
  • Pre-service training
  • In-service training

www.who.int/surgery
Utilizing the WHO IMEESC tool for Policy Management

WHO Planning tool for Emergency and Essential Surgical Services
Planning tool providing step-by-step instructions on establishing surgical services at the first referral level.
WHO IMEESC tool
Policy Management

- **Aide-Memoire:**
  - Education programs
  - Facilities & equipment
  - Supply of drugs, medications
  - Quality system
  - Adequate budget
Utilizing the WHO IMEESC tool for Infrastructure/Supplies Planning

Designed for use by district managers.

Enables them to identify equipment, procedures, and minimum package needed at various levels of care. Can also serve as a capacity building tool.

<table>
<thead>
<tr>
<th>Level 1</th>
<th>Level 2</th>
<th>Level 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small hospital / health centre</td>
<td>District or provincial hospital</td>
<td>Referral hospital</td>
</tr>
<tr>
<td>- Rural hospital or health centre with a small number of beds and a sparsely equipped operating room (O.R) for minor procedures</td>
<td>- District or provincial hospital with 100–300 beds and adequately equipped major and minor operating theatres</td>
<td>- A referral hospital of 300–1000 or more beds with basic intensive care facilities. Treatment aims are the same as for Level 2, with the addition of:</td>
</tr>
<tr>
<td>- Provides emergency measures in the treatment of 90–95% of trauma and obstetric cases (excluding caesarean section)</td>
<td>- Short term treatment of 95–99% of the major life threatening conditions</td>
<td>- Ventilation in O.R and ICU</td>
</tr>
<tr>
<td>- Referral of other patients (for example, obstructed labour, bowel obstruction) for further management at a higher level</td>
<td></td>
<td>- Prolonged endotracheal intubation</td>
</tr>
<tr>
<td>- Normal delivery</td>
<td>Same as Level 1 with the following additions:</td>
<td>Thoracic trauma care</td>
</tr>
<tr>
<td>- Uterine evacuation</td>
<td>- Caesarean section</td>
<td>Haemodynamic and Inotropic treatment</td>
</tr>
<tr>
<td>- Circumcision</td>
<td>- Laparotomy (usually not for bowel obstruction)</td>
<td>Basic ICU patient management and monitoring for up to 1 week: all types of cases, but with limited or no provision for:</td>
</tr>
<tr>
<td>- Hydrocele reduction, incision and drainage</td>
<td>- Amputation</td>
<td>- Multi-organ system failure</td>
</tr>
<tr>
<td>- Wound suturing</td>
<td>- Hernia repair</td>
<td>- Haemodialysis</td>
</tr>
<tr>
<td>- Control of haemorrhage with pressure dressings</td>
<td>- Tubal ligation</td>
<td>- Complex neurological and cardiac surgery</td>
</tr>
<tr>
<td>- Debridement and dressing of wounds</td>
<td>- Closed fracture treatment and application of plaster of Paris</td>
<td>- Prolonged respiratory failure</td>
</tr>
<tr>
<td>- Temporary reduction of fractures</td>
<td>- Eye operations, including cataract extraction</td>
<td>- Metabolic care or monitoring</td>
</tr>
<tr>
<td>- Cleaning or stabilization of open and closed fractures</td>
<td>- Removal of foreign bodies: e.g. in the airway</td>
<td></td>
</tr>
<tr>
<td>- Chest drainage (possibly)</td>
<td>- Emergency ventilation and airway management for referred patients such as those with chest and head injuries</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Procedures</th>
<th>Procedures</th>
<th>Procedures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal delivery</td>
<td>Same as Level 1 with the following additions:</td>
<td>Same as Level 2 with the following additions:</td>
</tr>
<tr>
<td>Uterine evacuation</td>
<td>Caesarean section</td>
<td>Facial and Intracranial surgery</td>
</tr>
<tr>
<td>Circumcision</td>
<td>Laparotomy (usually not for bowel obstruction)</td>
<td>Bowel surgery</td>
</tr>
<tr>
<td>Hydrocele reduction, incision and drainage</td>
<td>Amputation</td>
<td>Paediatric and neonatal surgery</td>
</tr>
<tr>
<td>Wound suturing</td>
<td>Hernia repair</td>
<td>Thoracic surgery</td>
</tr>
<tr>
<td>Control of haemorrhage with pressure dressings</td>
<td>Tubal ligation</td>
<td>Major eye surgery</td>
</tr>
<tr>
<td>Debridement and dressing of wounds</td>
<td>Closed fracture treatment and application of plaster of Paris</td>
<td>Major gynaecological surgery, e.g. vesico-vaginal repair</td>
</tr>
<tr>
<td>Temporary reduction of fractures</td>
<td>Eye operations, including cataract extraction</td>
<td></td>
</tr>
<tr>
<td>Cleaning or stabilization of open and closed fractures</td>
<td>Removal of foreign bodies: e.g. in the airway</td>
<td></td>
</tr>
<tr>
<td>Chest drainage (possibly)</td>
<td>Emergency ventilation and airway management for referred patients such as those with chest and head injuries</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Personnel</th>
<th>Personnel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paramedical staff without formal anaesthesia training</td>
<td>One [two] trained anaesthetists</td>
<td>Clinical officers and specialists in an anaesthesia and surgery</td>
</tr>
<tr>
<td>Nurse-midwife</td>
<td>District medical officers, senior clinical officers, nurses, midwives</td>
<td></td>
</tr>
<tr>
<td>Visiting specialists or resident surgeon and/or obstetrician/gynaecologist</td>
<td>Visiting specialists or resident surgeon and/or obstetrician/gynaecologist</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drugs</th>
<th>Drugs</th>
<th>Drugs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ketamine 50 mg/ml injection, 10 ml</td>
<td>Same as Level 1, but also:</td>
<td>Same as Level 2 with the following additions:</td>
</tr>
<tr>
<td>Lidocaine 1% or 2%</td>
<td>- Thiopental 500 mg/1g powder</td>
<td>- Vecuronium 10 mg powder</td>
</tr>
<tr>
<td>[Diazepam 5 mg/ml injection, 2 ml]</td>
<td>- Suxamethonium bromide 500 mg powder</td>
<td>- Pancuronium 4 mg injection</td>
</tr>
<tr>
<td>Pethidine 50 mg/ml injection, 2 ml</td>
<td>- Atropine 0.5 mg injection</td>
<td>- Pancuronium 4 mg injection</td>
</tr>
<tr>
<td>[Phenylephrine (adrenaline)] 1 mg</td>
<td>[Diazepam 10 mg injection Halothane 250 ml inhalation]</td>
<td>- Neostigmine 2.5 mg injection</td>
</tr>
<tr>
<td>[Atropine 0.6 mg/ml]</td>
<td>[Etar 500 ml inhalation]</td>
<td>- Trichloroethylene 500 mg/ml</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Calcium chloride 10% 10 ml injection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Phenylephrine 10% 10 ml injection</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Potassium chloride 20% 10 ml injection</td>
</tr>
</tbody>
</table>
Utilizing the WHO IMEESC tool for Infrastructure/Supplies Planning

WHO Generic Essential Emergency Surgical Care Equipment List:

- guideline for planning necessary equipment

- needs assessment of gaps in surgical materials and resources.

<table>
<thead>
<tr>
<th>Capital Outlays</th>
<th>Quantity</th>
<th>Date checked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resuscitator bag valve and mask (adult)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resuscitator bag valve and mask (pediatric)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oxygen source (cylinder or concentrator)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mask and Tubings to connect to oxygen supply</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light source to ensure visibility (lamp and flash light)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stethoscope</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suction pump (manual or electric)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood pressure measuring equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermometer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scalpel # 3 handle with #10,11,15 blade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scalpel # 4 handle with #22 blade</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scissors straight 12 cm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scissors blunt 14 cm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oropharyngeal airway (adult size)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oropharyngeal airway (pediatric size)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forcep Kocher no teeth 12-14 cm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Forcep, artery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kidney dish stainless steel approx. 26x14 cm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tourniquet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Needle holder</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Towel cloth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waste disposal container with plastic bag</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sterilizer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nail brush, scrubbing surgeon’s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vaginal speculum</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bucket, plastic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drum for compresses with lateral clips</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Examination table</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wash basin</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Renewable Items</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suction catheter sizes 16 FG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tongue depressor wooden disposable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nasogastric tubes 10 to 16 FG</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Batteries for flash light (size C)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intravenous fluid infusion set</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intravenous cannula #18, 22, 24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scalp vein infusion set #21, 25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Syringes 2ml</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Syringes 10 ml</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disposable needles # 25, 21, 19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sharps disposal container</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
WHO IMEESC tool

Research Assessment Needs

- WHO Situation analysis tool
- WHO Global database
- Provides First snapshot of Surgical (emergency, obstetrics, trauma, anesthesia) services
- Evidence-based decision-making:
  - Capacity building: equipment/skills/guidelines/training
  - Policies for strengthening district surgical services
### Assessment of Oxygen in 12 African countries

Table 2. Number and percentage [n, (%)] of health facilities that reported at least one of the items below was either always, sometimes, or not fully functioning and available for use at the time of inquiry.

<table>
<thead>
<tr>
<th></th>
<th>Electricity</th>
<th>Generator</th>
<th>Any oxygen source</th>
<th>Oxygen Cylinder</th>
<th>Oxygen Concentrator</th>
<th>Face mask and tubing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Always available</td>
<td>81 (35.1)</td>
<td>127 (56.7)</td>
<td>99 (43.8)</td>
<td>66 (29.1)</td>
<td>55 (24.6)</td>
<td>75 (34.3)</td>
</tr>
<tr>
<td>Sometimes available</td>
<td>112 (48.5)</td>
<td>59 (26.3)</td>
<td>71 (31.4)</td>
<td>55 (22.9)</td>
<td>64 (28.6)</td>
<td>79 (37.6)</td>
</tr>
<tr>
<td>Not available</td>
<td>38 (16.5)</td>
<td>38 (17.0)</td>
<td>56 (24.8)</td>
<td>109 (48.0)</td>
<td>105 (46.9)</td>
<td>65 (31.0)</td>
</tr>
</tbody>
</table>
Monitoring & Evaluation tool for assisting in budgeting to address gaps to access life-saving surgical (anesthesia, trauma, obstetrics) services.

Utilizing the WHO IMEESC tool for Research and Assessment Needs

<table>
<thead>
<tr>
<th>Name and designation of respondent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name, Address of Health Care Facility</td>
</tr>
<tr>
<td>e-mail and telephone no.</td>
</tr>
</tbody>
</table>

**Section A**

1. **Type of Healthcare Facility** (please check one)
   - Primary health care facility
   - First referral level health facility
   - Health Centre
   - District Hospital
   - Rural Hospital
   - Referral or Consultant Hospital
   - Teaching hospital
   - National hospital

2. **Number of beds**: less than 100/101-300/more than 300

3. **Health Personnel Available**
   - General doctors
   - Nurse anesthetists
   - Clinical/Assistant medical officers
   - Technicians
   - Paramedics
   - Surgeons
   - Obstetrician/gynecologist
   - Anesthesiologist

<table>
<thead>
<tr>
<th>Health Personnel Available</th>
<th>Before Workshop</th>
<th>After Workshop</th>
</tr>
</thead>
<tbody>
<tr>
<td>General doctors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurse anesthetists</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clinical/Assistant medical officers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technicians</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paramedics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surgeons</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obstetrician/gynecologist</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anesthesiologist</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Section B: Emergency and essential surgical and anesthesia interventions**

<table>
<thead>
<tr>
<th>Type of emergencies, surgical and anesthesia interventions managed at your facility</th>
<th>Pre-training</th>
<th>One year Post training</th>
</tr>
</thead>
<tbody>
<tr>
<td>This list is not exhaustive. It attempts to guide trainers to strengthen capacities in emergency and essential surgical and anesthesia interventions. The procedures are level dependent (refer guide to infrastructure and supplies for IMEESC)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Resuscitation (Control of airway &amp; hemorrhage, establish peripheral percutaneous intravenous line, peripheral venous cut down)</td>
<td>Number of cases managed in one year (specify the year)</td>
<td>Number of deaths after procedure in one year (specify the year)</td>
</tr>
<tr>
<td>2. Removal of foreign body</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Cricothyroidotomy /Tracheostomy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Chest tube insertion</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Incision and drainage of abscesses</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Wound suturing, dressing, suture removal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Wound debridement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Burns Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Contracture release</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Skin grafting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Biopsies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Suprapubic puncture/cystostomy</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
WHO Emergency & Essential Surgical Care: Education/Training

Integrating & Adapting Training Technologies to meet local needs

- Low cost editions
- Translations
- Electronic
- Distance learning
- Telemedicine
- Mobile technology
- Improving Quality & Safety
WHO Global Initiative for Emergency & Essential Surgical Care

Adapting training technologies to Meet Local Needs

WHO Emergency and Trauma Care course materials
Emphasizing injuries in women and children
Multi-skills: District/Sub-district level
 WHO Emergency & Essential Surgical Care: Education /Training

Adapting training technologies to meet local needs

WHO Primary Surgical Package

• Intravenous access
• Suturing
• Chest tube insertion
• Cricothyroidotomy
• Ketamine anesthesia
WHO IMEESC tool
Skills training

- CD Training Videos (7):
  - Wound management
  - Fracture management using traction & plaster
  - Open fractures, tendon injuries & soft tissues injuries; Fractures & dislocations of upper limb; Fractures & dislocations of lower limb & pelvis
  - Fractures in children
  - Head & spinal injuries
  - C-section
  - Vacuum Extraction
WHO IMEESC tool
Posters best practices

Implementation at point of care

• Emergency room
• O.R
• ICU
• Wards
• Obstetrics
• Disaster situation

Best Practice Protocols
Clinical Procedures Safety

List of Contents
1. Ethics- Patient Consent
2. Record keeping
3. Operating Room (O.R.)
4. Hand Washing Techniques
5. Scrubbing and gowning
6. Prevention of Transmission of HIV
7. Infection Prevention and Universal Precautions
8. Waste disposal in clinical procedures at resource limited health care facility
9. Diagnosis of Labour
10. Diagnosis of vaginal bleeding in early pregnancy
11. Severe Pre-Eclampsia and Eclampsia
12. Eclampsia Management
13. Urinary Retention: Emergency Drainage
14. Caesarean Section
15. Check List Prior to inducing anaesthesia
16. Managing unexpected effects of a spinal anaesthetic
17. Postoperative management
18. Postoperative pain relief
19. Cardiac life support
20. Airway Management
21. Surgical Cricothyroidotomy
22. Cast Application
23. Splint application
24. Caring for a cast or splint
25. Removing a cast
26. Hand lacerations
27. Disaster Planning
28. Trauma Team Leader Responsibilities
29. Abdominal Trauma
30. Burns Management: adults and children
31. War-related Trauma
32. Transportation of critically ill patients
WHO IMEESC tool

Posters best practices

- Infection prevention & control
- Skin preparation
- Waste disposal
- Patient consent/records

**Hand Washing Techniques**

When scrubbing (Figure 2.4):
- Remove all jewellery and trim the nails;
- Use soap, a brush (on the nails and finger tips) and running water to clean thoroughly around and underneath the nails;
- Scrub your hands and arms up to the elbows;
- After scrubbing, hold up your arms to allow water to drip off your elbows;
- Turn off the tap with your elbow. (Continued to next page)
WHO IMEESC tool
Posters best practices

- HIV prevention in clinical settings

**Prevention of Transmission of HIV**

- In the clinical setting, HIV may be transmitted by:
  - Injury with needles or sharp instruments contaminated with blood or body fluids,
  - The use of equipment that has not been properly disinfected, cleaned and sterilized,
  - Contact between open wounds, broken skin (for example, caused by dermatitis) or mucous membranes and contaminated blood or body fluids,
  - Transfusion of infected blood or blood products,
  - Vertical transmission between mother and child during, pregnancy, delivery and breast feeding.

- Purpose of infection precautions and aseptic technique is to prevent the transmission of infection.

- Best protection against HIV and other transmissible infections is attention to every detail of asepsis, with special care to avoid injury during operation.

- Each hospital should have clear guidelines for the management of injury or exposure to infectious materials.
WHO IMEESC tool
Posters best practices

- Burns

Management of Burns

The burns patient has the same priorities as all other trauma patients.

- Assess:
  - Airway
  - Breathing: beware of inhalation and rapid airway compromise
  - Circulation: fluid replacement
  - Disability: compartment syndrome
  - Exposure: percentage area of burn.

- Essential management points:
  - Stop the burning
  - ABCDE
  - Determine the percentage area of burn (Rule of 9's)
  - Good IV access and early fluid replacement.

- The severity of the burn is determined by:
  - Burned surface area
  - Depth of burn
  - Other considerations.

- Morbidity and mortality rises with increasing burned surface area. It also rises with increasing age so that even small burns may be fatal in elderly people.
Best Practice Guidelines on Emergency Surgical Care in Disaster Situations

These guidelines have been extracted from the WHO manual Surgical Care at the District Hospital (SCDH), which is a part of the WHO Integrated Management on Emergency and Essential Surgical Care (IMEESC) tool kit.

The following materials relevant to country's disaster situation should be taken from the IMEESC tool:
- Best practice protocols for Clinical Procedures Safety (disaster planning, trauma team responsibilities, hand hygiene, operating room, and anaesthesia check list, postoperative management, application of cast and splints, cardiac life support, airway management).
- Needs assessment
- Essential Emergency Equipment List
- Details of anaesthesia, gunshot and landmine injuries in chapters 13, 14, 17 and 18, in SCDH

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1. Antibiotic Prophylaxis
2. Antibiotic Treatment
3. Tetanus Prophylaxis
4. Failure of Normal Methods of Sterilization
5. Cleaning, Disinfection and Sterilization
6. Waste Disposal
7. Resuscitation
8. Unconsciousness
9. Wound Management
10. Hand Lacerations
11. Specific Lacerations and Wounds
12. Amputations
13. Drains
15. Cellulites and Abscess
16. Open Fractures
17. Upper Extremity injuries
18. Lower Extremity injuries
19. Spine injuries
20. Fractures in children
21. Compartment syndrome
22. Fat embolism syndrome
23. Female genital injury
24. Postoperative care
25. Ketamine anaesthesia
WHO IMEESC tool
Posters best practices

• Obstetric Care

Severe Pre-Eclampsia and Eclampsia

<table>
<thead>
<tr>
<th></th>
<th>Mild pre-eclampsia</th>
<th>Severe pre-eclampsia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diastolic blood pressure</td>
<td>&lt;110</td>
<td>110</td>
</tr>
<tr>
<td>Proteinuria</td>
<td>Up to 2+</td>
<td>3+ or more</td>
</tr>
<tr>
<td>Headache</td>
<td>No</td>
<td>One or more of these conditions may be present</td>
</tr>
<tr>
<td>Visual disturbances</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Hyperreflexia</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Urine output &lt;400 ml</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Epigastric or right upper quadrant pain</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>Pulmonary oedema</td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

Severe pre-eclampsia and eclampsia are managed similarly, with the exception that delivery must occur within 12 hours of the onset of convulsions in eclampsia.

All cases of severe pre-eclampsia should be managed actively. Symptoms and signs of “impending eclampsia” (blurred vision, hyperreflexia) are unreliable and expectant management is not recommended.

Eclampsia Management

Immediate management of a pregnant woman or a recently delivered woman who complains of severe headache or blurred vision, or if a pregnant woman or a recently delivered woman is found unconscious or having convulsions:

SHOUT FOR HELP
1. Make a quick assessment of the general condition of the woman, including vital signs (pulse, blood pressure, respiration) while simultaneously finding out the history of her present and past illnesses from her or her relatives:
   - Check airway and breathing
   - Position her on her side
   - Check for neck rigidity and temperature (Continued next page)
Abdominal Trauma

When a patient presents with abdominal injury to the primary survey:

1. Establish a clear airway.
2. Assure ventilation.
3. Arrest external bleeding.
4. Set up an intravenous infusion of normal saline lactate.
5. Insert a nasogastric tube and begin suction and output.
6. Send a blood sample for haemoglobin measurement and cross-match.
7. Insert a urinary catheter, examine the urine for monitor the urine output.
8. Perform the secondary survey: a complete physical examination to evaluate the abdomen and to extent of other injury.
9. Examine the abdomen for bowel sounds, tenderness, rigidity and contusions or open wounds.
10. Administer small doses of intravenous analgesics, prophylactic antibiotics and tetanus prophylaxis.

Trauma Team Leader Responsibilities

- Perform the primary survey and coordinate the management of airway, breathing and circulation
- Ensure that a good history has been taken from the patient, family and/or bystanders
- Perform the secondary survey to assess the extent of other injuries
- Consider tetanus prophylaxis and the use of prophylactic or treatment doses of antibiotics
- Reassess the patient and the efforts of the team
- Ensure patient documentation is completed, including diagnosis, procedure, medications, allergies, last meal and events leading up to the injury
- Communicate with other areas of the hospital and staff members
- Communicate with other people and institutions outside the hospital
- Prepare the patient for transfer
- Liaise with relatives.
- Information should flow to and through the leader:
- Know and use the names of the other members of the team and ensure that they have heard and understood directions
- Check back with members of the team to make sure designated tasks have been completed: for example:
  - “How is the airway?”
  - “Are you having any trouble bagging?”
  - “Have you had to suction much?”
  - “Is the second IV started?”
- Ask for input from the team, but ensure that all directions come from only one person.
WHO IMEESC tool
Posters best practices

Postoperative care

Post operative note and orders

The patient should be discharged to the ward with comprehensive orders for the following:
- Vital signs
- Pain control
- Rate and type of intravenous fluid
- Urine and gastrointestinal fluid output
- Other medications
- Laboratory investigations

The patient’s progress should be monitored and should include at least:
- A comment on medical and nursing observations
- A specific comment on the wound or operation site
- Any complications
- Any changes made in treatment

Aftercare: Prevention of complications

- Encourage early mobilization:
  - Deep breathing and coughing
  - Active daily exercise
  - Joint range of motion
  - Muscular strengthening
  - Make walking aids such as canes, crutches and walkers available and provide instructions for their use
- Ensure adequate nutrition
- Prevent skin breakdown and pressure sores:
  - Turn the patient frequently
  - Keep urine and faeces off skin
- Provide adequate pain control

Discharge note

On discharging the patient from the ward, record in the notes:
- Diagnosis on admission and discharge
- Summary of course in hospital
- Instructions about further management, including drugs prescribed.
Ensure that a copy of this information is given to the patient, together with details of any follow-up appointment

- Post operative Care
- Minimum standards for safety and quality
WHO IMEESC tool
Posters best practices

• Post operative Pain Relief

Post-Operative Pain Relief

• Pain is often the patient’s presenting symptom. It can provide useful clinical information and it is your responsibility to use this information to help the patient and alleviate suffering.

• Manage pain wherever you see patients (emergency, operating room and on the ward) and anticipate their needs for pain management after surgery and discharge.

• Do not unnecessarily delay the treatment of pain; for example, do not transport a patient without analgesia simply so that the next practitioner can appreciate how much pain the person is experiencing.

• *Pain management is our job.*

Pain Management and Techniques

• Effective analgesia is an essential part of postoperative management.

• Important injectable drugs for pain are the opiate analgesics. Nonsteroidal anti-inflammatory drugs (NSAIDs), such as diclofenac (1 mg/kg) and ibuprofen can also be given orally and rectally, as can paracetamol (15 mg/kg).

• There are three situations where an opiate might be given: pre-operatively, intra-operatively, post-operatively.

• Opiate premedication is rarely indicated, although an injured patient in pain may have been given an opiate before coming to the operating room.

• Opiates given pre- or intraoperatively have important effects in the postoperative period since there may be delayed recovery and respiratory depression, even necessitating mechanical ventilation.
WHO Emergency & Essential Surgical Care

Collaborations for Sustainable Capacity Building

• Affordable technologies:
  – targeted to low-resource settings for capacity building in equipment, skills

• WHO surgical standards incorporation:
  – outreach education/training programs

• WHO Monitoring & Evaluation tool utilization:
  – assess progress in surgical care health systems
WHO Global Initiative for Emergency & Essential Surgical Care

• Integrating surgical care technologies within existing National health programs
  - MDGs, Primary Health Care, Universal Health Coverage

• Surgical care incorporated in National health plan

THANK YOU