

Guide to Development of a Training Curriculum on Essential Emergency Surgical Skills

(Compiled from WHO manual Surgical Care at the District Hospital 2003)

PART 1: ORGANIZING THE DISTRICT HOSPITAL SURGICAL SERVICE

	Page No
1. Organization and management of the district surgical service	1–13
1.5 Record keeping	1–13
1.6 Evaluation	1–15
1.7 Disaster and trauma planning	1–17
2. The surgical domain: creating the environment for surgery	
2.1 Infection control and asepsis	2–1
▶ <i>Universal precautions</i>	
▶ <i>Hand washing</i>	
▶ <i>Prevention of transmission of HIV</i>	
▶ <i>Aseptic technique</i>	
2.2 Equipment	2–4
▶ <i>Care and repair</i>	
▶ <i>Use</i>	
2.3 Operating room	2–6
▶ <i>Room maintenance</i>	
▶ <i>Sponge and instruments count</i>	
▶ <i>Scrubbing and gowning</i>	
▶ <i>Skin preparation</i>	
▶ <i>Draping</i>	
2.4 Cleaning, sterilization and disinfection	2–11
2.5 Waste disposal	2–13

PART 2: FUNDAMENTALS OF SURGICAL PRACTICE

3. The surgical patient	
3.1 Approach to the surgical patient	3–1
▶ <i>History and physical examination</i>	
▶ <i>Investigations</i>	
▶ <i>Decision making</i>	
▶ <i>Preoperative note</i>	
▶ <i>Preparation of surgery</i>	
▶ <i>Intra-operative care</i>	
▶ <i>Operative note</i>	
▶ <i>Postoperative note and orders</i>	
▶ <i>Aftercare- prevention of complications and pain management</i>	
3.2 The paediatric patient	3–6
▶ <i>Physiological considerations</i>	
▶ <i>Anaesthesia and pain control</i>	
▶ <i>Pre and post operative care</i>	
▶ <i>Surgical problems in neonates</i>	
▶ <i>Surgical problems in young children</i>	
4. Surgical techniques	
4.1 Tissue handling	4–1
▶ <i>Incision technique</i>	
▶ <i>Haemostasis</i>	
4.2 Suture and suture technique	4–2
4.3 Prophylaxis	4–10

▶	<i>Antibiotic prophylaxis</i>	
▶	<i>Tetanus prophylaxis</i>	
5.	Basic surgical procedures	
5.1	Wound management	5–1
▶	<i>Primary repair, delayed primary closure, secondary healing</i>	
▶	<i>Drains</i>	
▶	<i>Split skin grafting</i>	
5.2	Specific lacerations and wounds	5–5
▶	<i>Blood vessels, nerves and tendons</i>	
▶	<i>Facial lacerations</i>	
▶	<i>Lip lacerations</i>	
▶	<i>Wounds of tongue</i>	
▶	<i>Ear and nose lacerations</i>	
▶	<i>Nose Bleed</i>	
▶	<i>Ocular trauma</i>	
▶	<i>Measurement of intraocular pressure</i>	
▶	<i>Tendon lacerations</i>	
▶	<i>Animal bites</i>	
5.3	Burns	5–13
▶	<i>Classification of depth of burn</i>	
▶	<i>Wound care</i>	
5.4	Foreign bodies	5–16
▶	<i>Eye, Ear, Nose</i>	
▶	<i>Airway</i>	
▶	<i>Gastrointestinal tract</i>	
▶	<i>Soft tissue</i>	
▶	<i>Body cavities</i>	
5.5	Cellulitis and abscess	5–19
▶	<i>Surgical drainage</i>	
▶	<i>Specific sites- face, eye, ear, dental, throat and neck, breast, thoracic empyema, pyomyositis, hand infections, perianal rectal and pilonidal sinuses</i>	
5.6	Excision	5-40
▶	<i>Perianal haematoma, anal fissure, haemorrhoids</i>	
	PART 3: THE ABDOMEN	
6.	Laparotomy and abdominal trauma	
6.1	Laparotomy	6–1
▶	<i>Laparotomy for patients with life threatening abdominal conditions including trauma</i>	
6.2	Abdominal trauma	6–4
▶	<i>Primary survey</i>	
▶	<i>Diagnostic peritoneal lavage</i>	
▶	<i>Penetrating and blunt injuries</i>	
7.	Acute abdominal conditions	
7.1	Assessment and diagnosis	7–1
7.2	Intestinal obstruction	7–2
▶	<i>Non operative and operative management</i>	
7.3	Peritonitis	7–4
7.4	Stomach and duodenum	7–5
▶	<i>Medical management of Bleeding peptic ulcer</i>	
7.6	Appendix	7–10
▶	<i>Emergency appendectomy for acute appendicitis</i>	

	▶ <i>Management of intussusception and sigmoid volvulus</i>	
8.	Abdominal wall hernia	
	8.1 Groin hernias	8–1
	▶ <i>Assessment</i>	
	8.2 Surgical repair of inguinal hernia	8–2
	8.4 Surgical treatment of strangulated groin hernia	8–8
9.	Urinary tract and perineum	
	9.1 The urinary bladder	9–1
	▶ <i>Urethral catheterization of male patient</i>	9–1
	▶ <i>Suprapubic puncture</i>	9–3
	▶ <i>Suprapubic cystostomy</i>	9–4
	9.2 The male urethra	9–6
	▶ <i>Urethral dilation for urethral stricture</i>	
	▶ <i>Male circumcision</i>	
	▶ <i>Orchidectomy for torsion testis</i>	
	▶ <i>Surgery for scrotal hydrocele in adults</i>	
	▶ <i>Vasectomy</i>	
	9.3 The perineum	9–16
	▶ <i>Female genital injuries and mutilation</i>	
	▶ <i>Perineal abscess, Bartholin abscess, hematocolpos</i>	
	▶ <i>Male perineal infections- Fournier`s gangrene, periurethral abscess</i>	
PART 4: EMERGENCY OBSTETRIC CARE		
10.	Hypertension in pregnancy	
	10.1 Hypertension	10–1
	10.2 Assessment and management	10–3
	10.3 Delivery	10–8
	10.4 Postpartum care	10–8
	10.5 Chronic hypertension	10–9
11.	Management of slow progress of labour	
	11.1 General principles	11–1
	11.2 Slow progress of labour	11–3
	11.3 Progress of labour	11–9
	11.4 Operative procedures	11–13
	▶ <i>Caesarean section</i>	
	▶ <i>Tubal ligation during Caesarean section</i>	
	▶ <i>Induction and augmentation of labour</i>	
	▶ <i>Instrumental delivery- vacuum extraction, forceps delivery</i>	
	▶ <i>Craniotomy and craniocentesis</i>	
12.	Bleeding in pregnancy and childbirth	
	12.1 Bleeding	12–1
	▶ <i>Bleeding in early pregnancy- spontaneous abortion, induced abortion Unsafe abortion, septic abortion, ectopic pregnancy</i>	
	▶ <i>Bleeding in late pregnancy and labour- placental abruption, placenta praevia, uterine rupture</i>	
	▶ <i>Post partum haemorrhage</i>	
	12.2 Diagnosis and initial management	12–3
	12.3 Specific management	12–6
	▶ <i>Threatened abortion</i>	
	▶ <i>Inevitable abortion</i>	
	▶ <i>Incomplete abortion</i>	

▶ <i>Complete abortion</i>	
▶ <i>Ectopic pregnancy- autologous blood transfusion</i>	
▶ <i>Abruptio placenta</i>	
▶ <i>Coagulopathy (Clotting failure)</i>	
▶ <i>Ruptured uterus</i>	
▶ <i>Placenta praevia</i>	
▶ <i>Atonic uterus</i>	
▶ <i>Tears of cervix, vagina, perineum</i>	
▶ <i>Retained placenta</i>	
▶ <i>Inverted uterus</i>	
▶ <i>Delayed Post partum haemorrhage</i>	
12.4 Procedures	12–15
▶ <i>Manual vacuum aspiration</i>	
▶ <i>Dilation and curettage</i>	
▶ <i>Culdocentesis</i>	
▶ <i>Colpotomy</i>	
▶ <i>Salpingectomy for ectopic pregnancy</i>	
▶ <i>Salpingostomy</i>	
▶ <i>Repair of ruptured uterus</i>	
▶ <i>Repairing the uterine tear</i>	
▶ <i>Rupture through cervix and vagina</i>	
▶ <i>Rupture laterally through uterine artery</i>	
▶ <i>Rupture with broad ligament haematoma</i>	
▶ <i>Repair of bladder injury</i>	
▶ <i>Manual removal of placenta</i>	
▶ <i>Repair of cervical tears, vaginal and perineal tears</i>	
▶ <i>Management of neglected cases- haematoma, infections, necrotising fasciitis, faecal incontinence, rectovaginal fistula,</i>	
▶ <i>Uterine inversion</i>	
▶ <i>Uterine and utero-ovarian artery ligation</i>	
▶ <i>Post partum hysterectomy</i>	
12.5 Aftercare and follow-up	12–35
▶ <i>Abortion</i>	
▶ <i>Ectopic pregnancy</i>	
▶ <i>Molar pregnancy</i>	
▶ <i>Bleeding in late pregnancy and labour and post partum haemorrhage</i>	
PART 5: RESUSCITATION AND ANAESTHESIA	
13. Resuscitation and preparation for anaesthesia and surgery	
13.1 Management of emergencies and cardiopulmonary resuscitation	13–1
▶ <i>Airway and breathing</i>	
▶ <i>Cardiac arrest and inadequate circulation</i>	
▶ <i>Cardiac life support</i>	
▶ <i>Haemorrhage</i>	
▶ <i>Shock</i>	
▶ <i>Unconsciousness</i>	
13.2 Other conditions requiring urgent attention	13–10
▶ <i>Anaemia</i>	
▶ <i>Convulsions</i>	
13.3 Intravenous access	13–11
13.4 Fluids and drugs	13–15

▶ <i>What fluids to give</i>		
▶ <i>How much to give</i>		
▶ <i>Paediatric fluids</i>		
▶ <i>Speed of intravenous fluid therapy</i>		
▶ <i>What blood pressure should you aim for?</i>		
13.5 Drugs in resuscitation		13–18
13.6 Preoperative assessment and investigations		13–20
▶ <i>Consent and expectations</i>		
▶ <i>Preoperative fasting and fluids</i>		
▶ <i>Premedication</i>		
▶ <i>Investigations</i>		
13.7 Anaesthetic issues in the emergency situation		13–27
▶ <i>Anaesthetic techniques</i>		
▶ <i>Safety of general and conduction techniques</i>		
▶ <i>Choice of technique in emergency anaesthesia</i>		
13.8 Important medical conditions for the anaesthetist		13–36
▶ <i>Anaemia</i>		
▶ <i>Hypertension</i>		
▶ <i>Respiratory diseases- Tuberculosis, Asthma and chronic bronchitis</i>		
▶ <i>Diabetes</i>		
▶ <i>Obesity</i>		
▶ <i>Prevention of blood spread infections during anaesthesia</i>		
14. Practical anaesthesia		
14.1 General anaesthesia		14–1
▶ <i>Preparation for General anaesthesia</i>		
▶ <i>Intravenous induction</i>		
▶ <i>Intramuscular</i>		
▶ <i>Inhalational</i>		
▶ <i>Using draw over apparatus</i>		
▶ <i>Using a compressed gas machine</i>		
▶ <i>Maintenance of anaesthesia</i>		
14.2 Anaesthesia during pregnancy and for operative delivery		14–12
14.3 Paediatric anaesthesia		14–14
▶ <i>preparations before induction</i>		
14.4 Conduction anaesthesia		14–21
▶ <i>Toxicity and safety of local anaesthetic drugs</i>		
14.5 Specimen anaesthetic techniques		14–25
▶ <i>Ketamine anaesthesia</i>		
▶ <i>General anaesthesia with intubation</i>		
▶ <i>Inhalational technique without intubation</i>		
▶ <i>Total intravenous anaesthesia</i>		
▶ <i>Specimen spinal technique for elective caesarean section</i>		
▶ <i>Anaesthesia for evacuation of retained products of conception (ERPC)</i>		
▶ <i>Emergency laparotomy</i>		
▶ <i>Emergency case with a complicated airway</i>		
14.6 Monitoring the anaesthetized patient		14–34
14.7 Postoperative management		14–45
▶ <i>In Recovery</i>		
▶ <i>Post operative extubation</i>		
▶ <i>Pain management and techniques</i>		
▶ <i>Post operative fluid management</i>		

▶ <i>Intensive care unit</i>	
15. Anaesthetic infrastructure and supplies	
15.1 Equipment and supplies for different level hospitals	15-1
15.2 Anaesthesia and oxygen	15-5
▶ <i>Oxygen sources</i>	
▶ <i>Oxygen cylinders</i>	
▶ <i>Safe use of oxygen cylinders</i>	
▶ <i>Supplies, equipment and maintenance</i>	
▶ <i>Oxygen concentrators</i>	
15.3 Fires, explosions and other risks	15-11
15.4 Care and maintenance of equipment	15-12
PART 6: TRAUMATOLOGY AND ORTHOPAEDICS	
16. Acute trauma management	
16.1 Trauma in perspective	16-1
16.2 Principles of Primary Trauma Care Management	16-2
16.3 Six phases of Primary Trauma Care Management	16-3
16.4 Procedures	16-8
▶ <i>Insertion of the chest drain and underwater seal Drainage</i>	
▶ <i>Tracheostomy</i>	
17. Orthopaedic techniques	
17.1 Traction	17-1
▶ <i>Skin traction</i>	
▶ <i>Skeletal traction</i>	
17.2 Casts and splints	17-6
▶ <i>Materials</i>	
▶ <i>Cast application</i>	
▶ <i>Splint application</i>	
17.5 Physical therapy- <i>why, who, what and how</i>	17-13
18 Orthopaedic trauma	
18.1 Upper extremity injuries	18-1
18.2 The hand	18-11
18.3 Fractures of the pelvis and hip	18-14
18.4 Injuries of the lower extremity	18-17
18.5 Spine injuries	18-25
18.6 Fractures in children	18-28
18.7 Amputations- severe infections and irreparable trauma	18-31
18.8 Complications	18-33
18.9 War related trauma	18-36
▶ <i>Gunshot wounds</i>	
▶ <i>Landmine injuries</i>	
19 General orthopaedics	
19.3 Infection	19-5
▶ <i>Septic arthritis</i>	
▶ <i>Pyogenic osteomyelitis</i>	

Clinical Procedures
Department of Essential Health Technologies
World Health Organization,
1211, Geneva 27, Switzerland
Fax: 41 22 791 4836
Web site: www.who.int/surgery