



PIPES Surgical Assessment

This survey is made to assess the gaps in availability of Surgical Care at resource constraint health facilities. This novel Surgical Care Analysis (SCA) survey was developed by modifying the WHO tool to include absolute numbers of hospital beds and operating rooms; a binary system of measurement to enable easier counting of items; omitting reasons for not performing procedures; and restructuring and streamlining individual questions. The final SCA survey had 105 total data items compared to the 256 of the WHO tool. The 105 data items were divided into five sections: Personnel, Infrastructure, Procedures, Equipment and Supplies (PIPES).

COUNTRY:		
Interviewer: Name/contact info		
Health Care Facility: Name/address		
Phone interview or site visit:		
Respondent: Name/contact info:		
Type of Healthcare Facility: (Health Center, District, Tertiary, Univ, Private, NGO, Mission)		
Hospital beds (total numbers)		
<hr/>		
PERSONNEL (4)	Total number	
General surgeon		
Anesthesiologists (MD)		
Medical doctors (doing surgery)		
Nurse anesthetists		
<hr/>		
TOTAL P-score: (add all the numbers of Personnel)		
<hr/>		
INFRASTRUCTURE (13)	Always available (1)	Not always available (0)
Running water?		
External electricity?		
Functioning back-up generator?		
Incinerator?		
Medical records?		
Emergency department?		
Postoperative care area?		
Intensive Care Unit?		
Pretested blood available (blood bank)?		
Lab to test blood and urine?		
Functioning X-ray machine?		
Functioning ultrasound machine?		
Functioning CT scan?		
<hr/>		
Sub TOTAL I score: (give 1 point to each available)		
Number of functioning operating rooms:		
<hr/>		
TOTAL I-score: (add subtotal + # operating rooms)		


PIPES Surgical Assessment

PROCEDURES (40)	Done (1)	Not done (0)
Resuscitation		
Suturing		
Wound debridement		
Incision & drainage of abscess		
Laparotomy		
Cricothyroidotomy		
Tracheostomy		
Chest tube insertion		
Burn management		
Cesarean Section		
Dilatation & Curettage		
Tubal ligation		
Hysterectomy		
Obstetric fistula repair		
Appendectomy		
Hernia repair - elective		
Hernia repair -strangulated		
Hydrocele		
Bowel resection and anastomosis		
Male circumcision		
Biopsy (lymph node, mass, other)		
Cholecystectomy		
Skin grafting		
Pediatric hernia repair		
Pediatric abdominal wall defects		
Repair Imperforate anus		
Splinting		
Casting		
Traction (closed fracture)		
Open Treatment of Fracture		
Management of Osteomyelitis		
Amputation		
Clubfoot repair		
Cleft lip repair		
Contracture release/		
Laparoscopic surgery		
Regional anesthesia blocks		
Spinal anesthesia		
Ketamine anesthesia		
General anesthesia		
TOTAL Pr-score: (add all procedures done)		



SURGEONS OVERSEAS

PIPES Surgical Assessment

Equipment (22)	Always available (1)	Not always available (0)
Oxygen: compressed (cylinder)		
Oxygen: concentrator		
Resuscitator bag valve & mask (adult)		
Resuscitator bag valve & mask (paediatric)		
Oropharyngeal airway (adult size)		
Oropharyngeal airway (paediatric)		
Endotracheal tubes (adult)		
Endotracheal tubes (paediatric)		
Anesthesia machine		
Pulse oximeter		
Oxygen mask & tubing		
Stethoscope		
Blood pressure measuring equipment		
Thermometer		
Instrument sets (abdominal, c-section)		
Kidney dish stainless steel		
Sterilizer (autoclave)		
Suction pump (manual or electric)		
Electrocautery machine		
Vaginal speculum		
Endoscopes (gastro, colon, broch)		
Operating room lights		
TOTAL E-score: (add all Equipment available)		


PIPES Surgical Assessment

SUPPLIES (25)	Always available/ sufficient (1)	Not always available/ sufficient (0)
Gloves (sterile)		
Gloves (examination)		
Nasogastric tubes		
Intravenous fluid infusion sets		
IV cannulas		
Syringes		
Disposable needles		
Tourniquet		
Sterile gauze		
Bandages sterile		
Adhesive Tape		
Suture (absorbable)		
Suture (non-absorbable)		
Urinary catheters		
Sharps disposal container		
Scalpel blades		
Face masks		
Eye protection (goggles, safety glasses)		
Apron		
Boots (theatre shoes)		
Gowns (for surgeon/scrub nurse)		
Drapes (for operations)		
Chest tubes		
Trach tubes		
Laparoscopic supplies		
Total S-score: (add all supplies sufficient available)		

A total PIPES score is calculated by summing the number of the Personnel, Infrastructure and number of operating rooms, Procedure, Equipment and Supplies scores. This number was then divided by the total number of data items (105) and multiplied by 10 to create the PIPES index. For a maternity hospital or otherwise categorical hospital with a lower possible Procedure score the number of reduced data items is used. There is no maximum number for the PIPES index.

P-score: (no maximum)
 I-score: (maximum 13 plus numbers of functioning operating rooms)
 Pr-score: (maximum of 40)
 E-score: (maximum of 22)
 S-score: (maximum of 25)

TOTAL PIPES SCORE:

Divide the total score by 105 and multiply by 10 for the PIPES- index:
 (TOTAL PIPES SCORE / 105) x 10 =

Questions regarding PIPES or access to an iPad application can be forwarded to: reinou@humanitariansurgery.org