



Pedi PIPES Assessment of Pediatric Surgical Capacity

The PIPES survey assesses gaps in the availability of essential and emergency surgical care (EESC) at resource constrained health facilities. This novel survey originated as the WHO Tool for Situational Analysis, and was subsequently modified by Surgeons OverSeas (SOS) 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 of individual questions. The data items were divided into five sections: Personnel, Infrastructure, Procedures, Equipment and Supplies (PIPES), and permitted the derivation of an index of surgical capacity (PIPES index). This PediPIPES survey focuses on the capacity of health facilities to provide EESC to infants and children, and has 118 total data items compared to the 256 of the WHO tool. In this survey, a child is defined as age ≤ 18 years

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, Secondary, Tertiary, Univ, Private, NGO, Mission)		
Hospital beds (total numbers)		
Hospital Beds (Pediatric)		
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PERSONNEL (7)	Total number	
Pediatric surgeon		
General surgeon		
Medical doctors (doing surgery on children)		
Pediatricians		
Pediatric trained nurses		
Anesthesiologists (MD)		
Nurse anesthetists		
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TOTAL P-score: (add all the numbers of Personnel)		
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INFRASTRUCTURE (14)	Always available (1)	Not always available (0)
Running water?		
External electricity?		
Functioning back-up generator?		
Incinerator?		
Medical records?		
Emergency department?		
Postoperative care area?		
Special Care Baby Unit		
Neonatal Intensive Care Unit (NICU) or General ICU?		
Pretested blood available (blood bank)?		
Lab to test blood and urine?		
Functioning X-ray machine?		
Functioning ultrasound machine?		
Functioning CT scan?		
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Sub TOTAL I score: (give 1 point to each available)		
# of functioning newborn incubators:		
# of functioning pediatric ventilators in ICU/NICU:		
# of functioning operating rooms:		
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TOTAL I-score: (add subtotal + # incubators + # pediatric ventilators + # operating rooms)		



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PROCEDURES (46)	Done (1)	Not done (0)
Resuscitation		
Suturing		
Wound debridement		
Incision & drainage of abscess		
Laparotomy		
Tracheostomy		
Chest tube insertion		
Burn management		
Non-operative Reduction of intussusception		
Appendectomy		
Removal of airway and esophageal foreign bodies		
Bowel resection and anastomosis		
Male circumcision		
Skin grafting		
Pediatric hernia repair		
Pediatric abdominal wall defects		
Repair Imperforate anus		
Ladd procedure		
Orchiopexy		
Rectal biopsy		
Pullthrough for Hirschsprung disease		
Repair of testicular torsion		
Resection solid abdominal mass		
Thoracotomy		
Insertion G-tube		
Repair esophageal atresia		
Repair intestinal atresia		
Creation Intestinal stomas		
Closure intestinal stomas		
Repair imperforate hymen		
Pyloromyotomy		
Ovarian cystectomy		
Fracture Splinting		
Casting for Fracture		
Traction (closed fracture)		
Treatment of Open Fracture		
Management of Osteomyelitis		
Amputation		
Non-operative treatment of Clubfoot		
Contracture release		
Laparoscopic surgery		
Repair Spina Bifida		
Regional anesthesia blocks		
Spinal anesthesia		
Ketamine anesthesia		
General anesthesia		
TOTAL Pr-score: (add all procedures done)		



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Equipment (22)	Always available (1)	Not always available (0)
Oxygen: compressed (cylinder)		
Oxygen: concentrator		
Resuscitator bag valve & mask (paediatric)		
Oropharyngeal airway (paediatric)		
Endotracheal tubes (pediatric)		
Anesthesia machine		
Pulse oximeter		
Oxygen mask & tubing		
Stethoscope		
Blood pressure measuring equipment (Pediatric cuffs)		
Thermometer		
Weighing Scale (Infant)		
Surgical Instrument sets (abdominal)		
Kidney dish stainless steel		
Sterilizer (autoclave)		
Suction pump (manual or electric)		
Electrocautery machine		
Apneic alarm detector/Apnea monitor		
Syringe pumps		
Neonatal T-piece (e.g. Jackson Rees)		
Endoscopes (any of esophagoscope/bronch/cysto)		
Operating room lights		
TOTAL E-score: (add all Equipment available)		



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SUPPLIES (26)	Always available/ sufficient (1)	Not always available/ sufficient (0)
Gloves (sterile)		
Gloves (examination)		
Nasogastric tubes 12F or smaller		
Intravenous fluid infusion sets		
Blood transfusion sets		
IV cannulas		
Syringes		
Disposable needles		
Tourniquet		
Sterile gauze		
Bandages sterile		
Adhesive Tape		
Suture (absorbable)		
Suture (non-absorbable)		
Urinary catheters (must include 6F)		
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 12F or smaller		
Trach tubes		
Laparoscopic supplies		
Total S-score: (add all supplies sufficient available)		

A total PediPIPES 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 (118) and multiplied by 10 to create the PediPIPES index. There is no maximum number for the PediPIPES index.

- P-score: (no maximum)
- I-score: (maximum XX plus # of functioning incubators, pediatric ventilators, and ORs)
- Pr-score: (maximum of XX)
- E-score: (maximum of XX)
- S-score: (maximum of XX)

TOTAL PediPIPES SCORE:

Divide the total score by 118 and multiply by 10 for the PIPES- index:

(TOTAL PediPIPES SCORE / 118) x 10 =

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