

Supplemental material:**Full results**

Human Resources Performances	Yes, N (%)		No, N (%)	
	Higher level	Lower level	Higher level	Lower level
EMERGENCY CARE CLINICAL PROVIDERS				
Core of fixed providers permanently assigned to the emergency unit	2 (100.0)	2 (22.2)	0 (0.0)	7 (77.8)
	Average Number of Providers, N		Average Number of Licensed or Certified Providers, N	
	Higher level	Lower level	Higher level	Lower level
Number of <u>non-rotating</u> providers assigned to emergency unit				
Nurses/nurse midwives	25.5	1.6	18.0	1.6
Mid-level provider or advance practice nurses	3.5	0.4	3.5	0.4
Doctors without specialist training	12.0	0.8	10.5	0.8
Emergency medicine specialists	1.5	0.0	1.5	0.0
Other specialist doctor	0.0	0.1	0.0	0.1
Number of <u>rotating</u> providers assigned to emergency unit				

Nurses/nurse midwives	0.5	14.1	0.0	14.1		
Mid-level provider or advance practice nurses	0.0	9.2	0.0	9.2		
Doctors without specialist training	7.0	5.7	0	5.7		
Emergency medicine specialists	0.0	0.0	0.0	0.0		
Other specialist doctor	0.0	0.0	0.0	0.0		
CONSULTING SERVICES AVAILABLE TO THE EMERGENCY UNIT						
	Adequate, N (%)		Some Availability, N (%)		Generally unavailable, N (%)	
	Higher level	Lower level	Higher level	Lower level	Higher level	Lower level
Consulting Service						
General Surgery	2 (100.0)	4 (44.4)	0 (0.0)	3 (33.3)	0 (0.0)	2 (22.2)
OB/GYN	2 (100.0)	3 (33.3)	0 (0.0)	2 (22.2)	0 (0.0)	4 (44.4)
Orthopaedics	2 (100.0)	4 (44.4)	0 (0.0)	3 (33.3)	0 (0.0)	2 (22.2)
Anaesthesia	0 (0.0)	0 (0.0)	2 (100.0)	8 (88.9)	0 (0.0)	1 (11.1)
Paediatrics	2 (100.0)	1 (11.1)	0 (0.0)	2 (22.2)	0 (0.0)	6 (66.7)
Psychiatry	1 (50.0)	2 (22.2)	1 (50.0)	2 (22.2)	0 (0.0)	5 (55.6)
Other Specialty	1 (50.0)	3 (33.3)	1 (50.0)	4 (44.4)	0 (0.0)	2 (22.2)

Clinical Services Performances	Average Proportion		Don't Know, N			
	Higher level	Lower level	Higher level		Lower level	
ACCESS						
Proportion of patients with emergency conditions brought to the facility by ambulance with formally trained prehospital care providers	0.325	0.065	N/A		1 facility	
	Yes, N (%)		No, N (%)		No Data, N (%)	
	Higher level	Lower level	Higher level	Lower level	Higher level	Lower level
Presence of regulations and/or protocols mandating that acutely ill or injured patients are clinically triaged prior to being required to register	2 (100.0)	7 (77.8)	0 (0.0)	1 (11.1)	0 (0.0)	1 (11.1)
Requirement of payment prior to provision of initial emergency care	0 (0.0)	2 (22.2)	2 (100.0)	7 (77.8)	0 (0.0)	0 (0.0)
Presence of an electronic system for registration	2 (100.0)	8 (88.9)	0 (0.0)	1 (11.1)	0 (0.0)	0 (0.0)
TRIAGE						
Vital signs measured in triage area	2 (100.0)	9 (100.0)	0 (0.0)	0 (10.0)	0 (0.0)	0 (0.0)
Formal triage system	1 (50.0)	5 (55.6)	1 (50.0)	4 (44.4)	0 (0.0)	0 (0.0)

Time targets for each triage category	1 (50.0)	2 (22.2)	0 (0.0)	3 (33.3)	1 (50.0)	4 (44.4)
Regular tracking of compliance with time targets	0 (0.0)	2 (22.2)	0 (0.0)	1 (11.1)	2 (100.0)	6 (66.7)
Specific triage protocols for children <5 years of age	0 (0.0)	1 (11.1)	1 (50.0)	4 (44.4)	1 (50.0)	4 (44.4)
Specific triage protocols for pregnant women	0 (0.0)	0 (0.0)	1 (50.0)	5 (55.6)	1 (50.0)	4 (44.4)
GUIDELINES, PROTOCOLS, AND CHECKLISTS						
	Yes, N (%)		No, N (%)			
	Higher level	Lower level	Higher level		Lower level	
Written protocols						
Presence of any written protocols.	2 (100.0)	9 (100.0)	0 (0.0)		0 (0.0)	
	Yes		No			
	Higher level	Lower level	Higher level		Lower level	
Protocol for systematic triage that ensures patients are seen in order of acuity	2 (100.0)	7 (77.8)	0 (0.0)		2 (22.2)	
Syndromic surveillance guidelines with links to public health officials for case definition and reporting	2 (100.0)	8 (88.9)	0 (0.0)		1 (11.1)	

Clear protocol for communication with hospital administration during times of overcrowding	0 (0.0)	4 (44.4)	2 (100.0)	5 (55.6)
Emergency-unit-specific emergency response protocol, including protocol for mass casualty incidents	1 (50.0)	4 (44.4)	1 (50.0)	5 (55.6)
Clinical management protocols				
Protocol for initial approach to ABCDs (airway, breathing, circulation, basic neurologic function)	2 (100.0)	7 (77.8)	0 (0.0)	2 (22.2)
Trauma care checklist	1 (50.0)	0 (0.0)	1 (50.0)	9 (100.0)
Medical resuscitation checklist	1 (50.0)	4 (44.4)	1 (50.0)	5 (55.6)
Protocol for neonatal resuscitation	0 (0.0)	6 (66.7)	2 (100.0)	3 (44.4)
Protocol for volume resuscitation of children and adults	2 (100.0)	6 (66.7)	0 (0.0)	3 (33.3)
Protocol for adjusting interventions for malnourished patients	2 (100.0)	5 (55.6)	0 (0.0)	4 (44.4)
Protocol for post-exposure prevention of STI/HIV, emergency contraception, and counselling	2 (100.0)	8 (88.9)	0 (0.0)	1 (11.1)
Protocol for management of labour and delivery in low risk women	1 (50.0)	7 (77.8)	1 (50.0)	2 (22.2)
	Yes, N (%)		No, N (%)	
	Higher level	Lower level	Higher level	Lower level

Condition-specific management protocols				
Asthma exacerbation	2 (100.0)	6 (66.7)	0 (0.0)	3 (33.3)
Pneumonia	2 (100.0)	6 (66.7)	0 (0.0)	3 (33.3)
Maternal haemorrhage	1 (50.0)	7 (77.8)	2 (50.0)	2 (22.2)
Sepsis	1 (50.0)	4 (44.4)	1 (50.0)	5 (55.6)
Diabetic ketoacidosis	2 (100.0)	5 (55.6)	0 (0.0)	4 (44.4)
Other condition	2 (100.0)	6 (66.7)	0 (0.0)	3 (33.3)
Admission or discharge protocols				
Acuity-based internal transfer protocols to OR or ICU	1 (50.0)	3 (33.3)	1 (50.0)	6 (66.7)
Protocol for timely disposition from the emergency unit	2 (100.0)	4 (44.4)	0 (0.0)	5 (55.6)
Protocol for conveying information about discharge or disposition to the patient	2 (100.0)	8 (88.9)	0 (0.0)	1 (11.1)
Hand-over protocols when transferring patients from one care provider to another	2 (100.0)	6 (66.7)	0 (0.0)	3 (33.3)
Outside transfer protocols				
Condition-specific transfer or referral protocols	1 (50.0)	6 (66.7)	1 (50.0)	3 (33.3)

Communication with receiving facility prior to transfer of patients with emergency conditions	1 (50.0)	9 (100.0)	1 (50.0)	0 (0.0)
Safety protocols				
Infection prevention and control protocols	2 (100.0)	9 (100.0)	0 (0.0)	0 (0.0)
Protocol for post exposure prophylaxis for health care workers	2 (100.0)	8 (88.9)	0 (0.0)	1 (11.1)
Security protocols to protect staff, patients, and infrastructure from violence.	0 (0.0)	6 (66.7)	2 (100.0)	3 (33.3)
Protocol for managing hazardous exposures (including designated decontamination area)	0 (0.0)	3 (33.3)	2 (100.0)	6 (66.7)
Containment and disposal of sharps and biomedical waste	2 (100.0)	9 (100.0)	0 (0.0)	0 (0.0)
Plan to ensure emergency unit staff and patient safety if an incident occurs within the emergency unit (including space, transport, communications)	0 (0.0)	4 (44.4)	2 (100.0)	5 (55.6)
QUALITY IMPROVEMENT IN THE EMERGENCY UNIT				
Systematic process for collecting patient data that links condition, management and outcomes (e.g., trauma registry)	2 (100.0)	4 (44.4)	0 (0.0)	5 (55.6)
Regular meetings convened to use clinical data for quality improvement (e.g., morbidity and mortality conferences, preventable death panels)	2 (100.0)	9 (100.0)	0 (0.0)	0 (0.0)

Tracking (e.g., clinical audit) to ensure that quality improvement actions (e.g., corrective action) are implemented after review meetings	2 (100.0)	9 (100.0)	0 (0.0)		0 (0.0)	
Clinical document template (e.g., standardised clinical chart)	2 (100.0)	7 (77.8)	0 (0.0)		2 (22.2)	
Visit to this emergency facility by a supervisor from outside the facility within the last 6 months	2 (100.0)	8 (88.9)	0 (0.0)		1 (11.1)	
Documentation from the most recent external supervisory visit	2 (100.0)	8 (88.9)	0 (0.0)		1 (11.1)	
	Yes, N (%)		No, N (%)		No Data, N (%)	
	Higher level	Lower level	Higher level	Lower level	Higher level	Lower level
Document provides feedback or comments on some aspect of emergency services	2 (100.0)	8 (88.9)	0 (0.0)	0 (0.0)	0 (0.0)	1 (11.1)

Signal Function Performances	Adequate, N (%)		Some Availability, N (%)		Generally unavailable, N (%)	
	Higher level	Lower level	Higher level	Lower level	Higher level	Lower level
VITAL SIGNS, AIRWAY, BREATHING						
Vital signs						
Vital signs triage area	1 (50.0)	9 (100.0)	1 (50.0)	0 (0.0)	0 (0.0)	0 (0.0)
Vital signs emergency unit	1 (50.0)	8 (88.9)	1 (50.0)	1 (11.1)	0 (0.0)	0 (0.0)

Airway						
Manual airway manoeuvres	0 (0.0)	6 (66.7)	2 (100.0)	3 (33.3)	0 (0.0)	0 (0.0)
Use of suction	1 (50.0)	2 (22.2)	1 (50.0)	7 (77.8)	0 (0.0)	0 (0.0)
Placement of oro- or nasopharyngeal airway device	1 (50.0)	6 (66.7)	1 (50.0)	2 (22.2)	0 (0.0)	1 (11.1)
Placement of supraglottic device	0 (0.0)	1 (11.1)	0 (0.0)	4 (44.4)	2 (100.0)	4 (44.4)
Endotracheal intubation	2 (100.0)	3 (33.3)	0 (0.0)	4 (44.4)	0 (0.0)	2 (22.2)
Creation of surgical airway	0 (0.0)	0 (0.0)	0 (0.0)	1 (11.1)	2 (100.0)	8 (88.9)
Breathing						
Saturation measured at triage	1 (50.0)	8 (88.9)	1 (50.0)	1 (11.1)	0 (0.0)	0 (0.0)
Saturation measured in emergency unit	1 (50.0)	7 (77.8)	1 (50.0)	2 (22.2)	0 (0.0)	0 (0.0)
Bronchodilator administered	1 (50.0)	4 (44.4)	1 (50.0)	3 (33.3)	0 (0.0)	2 (22.2)
Administration of oxygen	2 (100.0)	8 (88.9)	0 (0.0)	1 (11.1)	0 (0.0)	0 (0.0)
Ventilation with BVM	1 (50.0)	8 (88.9)	1 (50.0)	0 (0.0)	0 (0.0)	1 (10.0)
Non-invasive mechanical ventilation	0 (0.0)	1 (11.1)	1 (50.0)	0 (0.0)	1 (50.0)	8 (88.9)
Invasive mechanical ventilation	0 (0.0)	0 (0.0)	1 (50.0)	5 (55.6)	1 (50.0)	4 (44.4)
Needle decompression of tension ptx	0 (0.0)	2 (22.2)	1 (50.0)	1 (11.1)	1 (50.0)	6 (66.7)
Placement of chest tube	0 (0.0)	3 (33.3)	2 (100.0)	2 (22.2)	0 (0.0)	4 (44.4)
CIRCULATION INTERVENTIONS						
Volume Resuscitation						

Administration of oral rehydration	1 (50.0)	9 (100.0)	0 (0.0)	0 (0.0)	1 (50.0)	0 (0.0)
Peripheral IV placement	2 (100.0)	9 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Intraosseous access	0 (0.0)	0 (0.0)	2 (100.0)	0 (0.0)	0 (0.0)	9 (100.0)
Venous cutdown	0 (0.0)	5 (55.6)	1 (50.0)	2 (22.2)	1 (50.0)	2 (22.2)
Central venous line placement	0 (0.0)	2 (22.2)	1 (50.0)	6 (66.7)	1 (50.0)	1 (11.1)
IV fluid administration	2 (100.0)	9 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Adjustment of fluid resuscitation for malnutrition or severe anaemia	2 (100.0)	8 (88.9)	0 (0.0)	0 (0.0)	0 (0.0)	1 (11.1)
Urinary catheter placement	2 (100.0)	9 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Control of Bleeding						
External control of haemorrhage	2 (100.0)	9 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Wound packing and/or suture to control bleeding	2 (100.0)	7 (77.8)	0 (0.0)	2 (22.2)	0 (0.0)	0 (0.0)
Tourniquet placement	1 (50.0)	7 (77.8)	1 (50.0)	2 (22.2)	0 (0.0)	0 (0.0)
Pelvic binding placement	0 (0.0)	2 (22.2)	2 (100.0)	3 (33.3)	0 (0.0)	4 (44.4)
Safe transfusion of blood performed	1 (50.0)	7 (77.8)	1 (50.0)	2 (22.2)	0 (0.0)	0 (0.0)
Point of care ultrasound performed	0 (0.0)	1 (11.1)	1 (50.0)	6 (66.7)	1 (50.0)	2 (22.2)
Cardiac Interventions						
Pericardiocentesis performed	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (100.0)	9 (100.0)
External defibrillation and/ or cardioversion performed	1 (50.0)	1 (11.1)	0 (0.0)	3 (33.3)	1 (50.0)	5 (55.6)

External cardiac pacing performed	0 (0.0)	0 (0.0)	1 (50.0)	2 (22.2)	1 (50.0)	7 (77.8)
Adrenaline available for administration	2 (100.0)	8 (88.9)	0 (0.0)	1 (11.1)	0 (0.0)	0 (0.0)
ECG performed and interpreted	0 (0.0)	4 (44.4)	1 (50.0)	3 (33.3)	1 (50.0)	2 (22.2)
Aspirin administered for ischemia	2 (100.0)	8 (88.9)	0 (0.0)	1 (11.1)	0 (0.0)	0 (0.0)
Thrombolytic administration for MI	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	2 (100.0)	9 (100.0)
Unconscious Patient						
Point of care glucose testing for unconscious patients	2 (100.0)	9 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Glucose administered for hypoglycemia	2 (100.0)	9 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Lumbar puncture performed in unconscious patient	0 (0.0)	3 (33.3)	0 (0.0)	4 (44.4)	2 (100.0)	2 (22.2)
Seizure						
Protection from secondary injury of patient with seizure	1 (50.0)	3 (33.3)	0 (0.0)	4 (44.4)	1 (50.0)	2 (22.2)
Benzodiazepine administered for seizure	2 (100.0)	9 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
IV Magnesium admin for eclampsia	2 (100.0)	8 (88.9)	0 (0.0)	1 (11.1)	0 (0.0)	0 (0.0)
Other						
Mental status examination performed	2 (100.0)	8 (88.9)	0 (0.0)	1 (11.1)	0 (0.0)	0 (0.0)
Management of extreme temperature	1 (50.0)	2 (22.2)	0 (0.0)	3 (33.3)	1 (50.0)	4 (44.4)
Safe physical restraint performed when needed	1 (50.0)	7 (77.8)	1 (50.0)	2 (22.2)	0 (0.0)	0 (0.0)
Medication administered for agitation	1 (50.0)	8 (88.9)	1 (50.0)	1 (11.1)	0 (0.0)	0 (0.0)

Procedural sedation performed	1 (50.0)	2 (22.2)	1 (50.0)	6 (66.7)	0 (0.0)	1 (11.1)
Relevant antidote administered for toxic exposure	0 (0.0)	0 (0.0)	2 (100.0)	9 (100.0)	0 (0.0)	0 (0.0)
SEPSIS INTERVENTIONS						
IV antibiotics administered when needed	2 (100.0)	8 (88.9)	0 (0.0)	1 (11.1)	0 (0.0)	0 (0.0)
IV vasopressor administered	1 (50.0)	0 (0.0)	0 (0.0)	3 (33.3)	1 (50.0)	6 (66.7)
Diagnostic paracentesis performed	2 (100.0)	8 (88.9)	0 (0.0)	1 (11.1)	0 (0.0)	0 (0.0)
Bedside minor surgical techniques for infectious source control	1 (50.0)	8 (88.9)	1 (50.0)	1 (11.1)	0 (0.0)	0 (0.0)
TRAUMA INTERVENTIONS						
Cervical spine immobilisation performed after trauma	2 (100.0)	4 (44.4)	0 (0.0)	3 (33.3)	0 (0.0)	2 (22.2)
Three-way dressing performed for sucking chest wound	0 (0.0)	0 (0.0)	1 (50.0)	1 (11.1)	1 (50.0)	8 (88.9)
Fasciotomy or escharotomy performed for compartment syndrome	0 (0.0)	2 (22.2)	1 (50.0)	2 (22.2)	1 (50.0)	5 (55.6)
Opiate analgesia administered	0 (0.0)	8 (88.9)	2 (100.0)	0 (0.0)	0 (0.0)	1 (11.1)
Fractures immobilised	2 (100.0)	9 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Closed reduction of fracture or dislocation performed	0 (0.0)	6 (66.7)	2 (100.0)	3 (33.3)	0 (0.0)	0 (0.0)
Antibiotics administered for open fractures	2 (100.0)	8 (88.9)	0 (0.0)	1 (11.1)	0 (0.0)	0 (0.0)
Initial wound care performance	2 (100.0)	9 (100.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)
Tetanus vaccination or IVIg administered	1 (50.0)	5 (55.6)	1 (50.0)	4 (44.4)	0 (0.0)	0 (0.0)

OBSTETRIC INTERVENTIONS						
Emergency vaginal delivery performed	1 (50.0)	4 (44.4)	1 (50.0)	4 (44.4)	0 (0.0)	1 (11.1)
Uterotonic drug administered	1 (50.0)	4 (44.4)	0 (0.0)	4 (44.4)	1 (50.0)	1 (11.1)
Neonatal resuscitation performed	0 (0.0)	3 (33.3)	1 (50.0)	4 (44.4)	1 (50.0)	2 (22.2)