Emergency care capacity of private primary healthcare facilities in Gauteng, South Africa

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Background. Strengthening emergency care at the primary healthcare (PHC) level has been identified as a strategy for improving the emergency care system, which should include the private sector as well. As the National Health Insurance Act will soon come into effect, more non-medical aid users are expected to access private healthcare facilities. There is a great need for further assessment of the emergency care capacity at private primary healthcare facilities.

Objective. To use a standardised facility-based assessment tool to assess if private PHC facilities in Gauteng have the capacity to deliver emergency care services using the Hospital Emergency Unit Assessment Tool (HEAT)

Method. The HEAT – a standardised tool – was used for quantitative description of the critical functions and structure of an emergency unit (EU) at any facility level of PHC facilities in a private healthcare group.

Results. More than half (n/N=10/19) of the facilities participated in the study. Facilities demonstrated adequate equipment, resources and staffing for basic emergency care despite a lack of specific skills and specialised protocols.

Conclusion. All private primary healthcare facilities met the listed infrastructure and essential equipment requirements for emergency care, including a resuscitation area; however, none of the facilities had an area specifically for triage. Common barriers to performing emergency care procedures across most facilities were due to a lack of training in emergency protocols and procedures.

Keywords: Emergency care capacity, South Africa, facility-based assessment tool.

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Contribution of the study

This study assessed the emergency care capacity of private primary healthcare facilities in Gauteng, South Africa, finding that while facilities had adequate infrastructure and equipment for basic emergency care, they lacked specialised triage areas and staff training in emergency protocols, highlighting gaps that need addressing as more patients are expected to access private healthcare under the National Health Insurance Act.

Emergency care at the primary healthcare (PHC) level is crucial as it provides the first point of contact for urgent medical situations, offering essential resuscitation, stabilisation and referral.[1,2] This reduces pressure on higher-level facilities, prevents overcrowding, and ensures timely care.[3] However, significant gaps exist; these include many PHC clinics lacking necessary medical supplies, equipment, and appropriate infrastructure, such as emergency rooms.[4] Additionally, there is a shortage of trained emergency personnel, exacerbated by high staff turnover and burnout.[5] Many facilities lack emergency planning and response systems, leading to delays in care.[3] Rural and underserved areas face more severe challenges, leading to disparities in health outcomes.[6] Emergency care in PHC settings is often underfunded and lacks targeted policies.[7]

Capacity refers to 'the combination of all the strengths, attributes and resources within an organisation used to achieve agreed goals'.[8] Studies in low- and middle-income countries (LMICs) show major gaps in emergency care capacity, particularly in resource-limited public healthcare facilities – this is in contrast to private facilities, where resources are largely unconstrained.[5] Assessing capacity highlights these disparities and provides data on a country's emergency services.[6] Many PHC facilities face poor infrastructure and shortages of medical supplies and staff.[2]

In South Africa (SA), gaps between the private and public health sectors persist. The private sector plays a key role in primary care, being well-resourced and specialised, which should enhance emergency care, even at the PHC level.[7,8] Private PHC facilities are critical in SA's health system, particularly for emergency care, as many insured and uninsured patients prefer them.[9] Evaluating these facilities is vital, given widespread emergency care deficiencies in LMICs.[1] With National Health Insurance (NHI) increasing patient access, private PHC must handle emergencies effectively to avoid overcrowding hospitals and care delays.[10] Strengthening private PHC facilities can reduce costs and improve timely access,[2] addressing gaps and supporting equitable healthcare.[11,12]

The implementation of National Health Insurance offers a chance to utilise the private sector's high-quality PHC capacity, which the government has yet to fully engage.[9] Assessing emergency care capacity in private PHC facilities is essential to improve healthcare access.

Objectives

The specific objective of this study was to use a standardised facility-based assessment tool to assess if private PHC facilities in Gauteng

have the capacity to deliver emergency care services using the Hospital Emergency Unit Assessment Tool (HEAT).

Methods

A quantitative, descriptive cross-sectional design was used in this study. A descriptive design was used to describe emergency care capacity at private PHC facilities in Gauteng at one particular time.[13] This study included a selection of private PHC facilities from one private healthcare group. Data from each facility were collected over a one-day period on the specified dates given by the facility managers. A quantitative approach was used to assess emergency care capacity by using the HEAT to systematically collect empirical data of each private PHC facility.

The descriptive design aimed to capture and describe the emergency care capacity at these facilities.

Population

PHC facilities belonging to a selected private healthcare group in Gauteng were included in this study.

Sample and sampling method

Total sampling was used for the selection of the private PHC facilities. Ten out of the 19 private facilities in the two major cities in Gauteng participated in the study.

Total purposeful sampling was used in this study to ensure all relevant private PHC facilities within the specific health group in Gauteng were invited to participate, ensuring broad representation within the specific healthcare group.

Purposeful sampling is especially effective when the research seeks insights from specific situations that are most relevant to the research subject.

Data collection

Before data collection, each facility was assigned a visit date and its manager was emailed an information letter outlining requirements. On the day of the visit, the manager guided the researcher through departments and provided necessary documents for the assessment. Each facility was visited once, with the assessment lasting about 40 minutes. The manager was asked to accompany the researcher, which allowed for easy access to the required information and a time-efficient process. Written consent was obtained from management. The manager's knowledge of the facility ensured the process was efficient and unbiased.

Instrument

This study utilised the Hospital Emergency Unit Assessment Tool (HEAT) which is a standardised tool for evaluating the critical functions and structure of an emergency unit (EU) at any facility level. The performance of signal functions, clinical services, human resources and facility characteristics are all scored.

Statistical considerations

Data were analysed and presented using descriptive statistics including measures of central tendency and data distribution.

Data analysis

Data were captured on a password-protected device using an Excel spreadsheet (Microsoft Corp., USA) and descriptive analysis was conducted. Categorical variables were summarised by frequency and percentage tabulation. Continuous variables were summarised by the mean (with standard deviation) or median (with interquartile range), depending on the distribution of the data.[14] Data analysis was carried out using SAS version 9.4 for Windows (SAS Institute, USA).

Ethics

Ethics approval was granted by the Human Research Ethics Committee (ref. no. M220112). Permission was also obtained from the private healthcare group's Research Operations Committee (ref. no. UNIV-2022-0035), which included all selected facilities, and the HEAT tool author (World Health Organization). The private healthcare group's name has been protected and not disclosed in the results.

Reliability and validity

The HEAT, developed with the WHO and the African Federation for Emergency Medicine, ensures valid findings. It demonstrates convergent validity by integrating elements from various validated tools, including the WHO Emergency Care System Framework and the African Federation for Emergency Medicine's Emergency Care Assessment Tool.

Results

More than half of the PHC facilities (n/N=10/19) agreed to participate in the audit; this corresponds to a response rate of 53%. Results presented below represent each category in the HEAT tool, with figures indicating the various subcategories. Categories which display an absent bar represent items which were not present in any of the selected facilities.

Identifying information

All facilities were private PHC clinics. The average (SD) distance to the nearest higher-level facility was 6.0 (2.2) km (range 2.8 - 8.9 km), while the average population served by the facility was 122 000 (range 2 600 - 337 000). All facilities had an area specifically designated for emergency care (EC).

Facility metrics

Facilities had a median of 9 EU visits per year, compared with a median of 3 000 outpatient visits per year. None of the facilities took inpatient admissions. Facilities had a median of 6 beds and 2 gurneys dedicated for general EC. Only 10% of the facilities had an operating theatre which did not include a high-acuity unit, nor did any facility carry out emergency operations. The EU services and staffing were available for an average 9.9 hours per day.

Infrastructure and essential equipment

Facilities had adequate infrastructure, however, most operated with paper-based EU charts (Fig. 1).

None of the facilities had designated triage areas. All facilities used oxygen supplied by tanks replenished from a central location when needed.

Diagnostic services

Facilities had adequate laboratory-based testing services, except for blood cultures and capacity to obtain sterile blood samples for lab testing (only available at 10% of facilities), as well as arterial blood gas (ABG) analysis and cross-matching for blood and blood products (not available at any facility). Facilities had adequate point-of-care (POC) testing services in the EU, except for rapid testing for HIV and malaria (available in 80% and 30% of facilities, respectively). Diagnostic imaging services

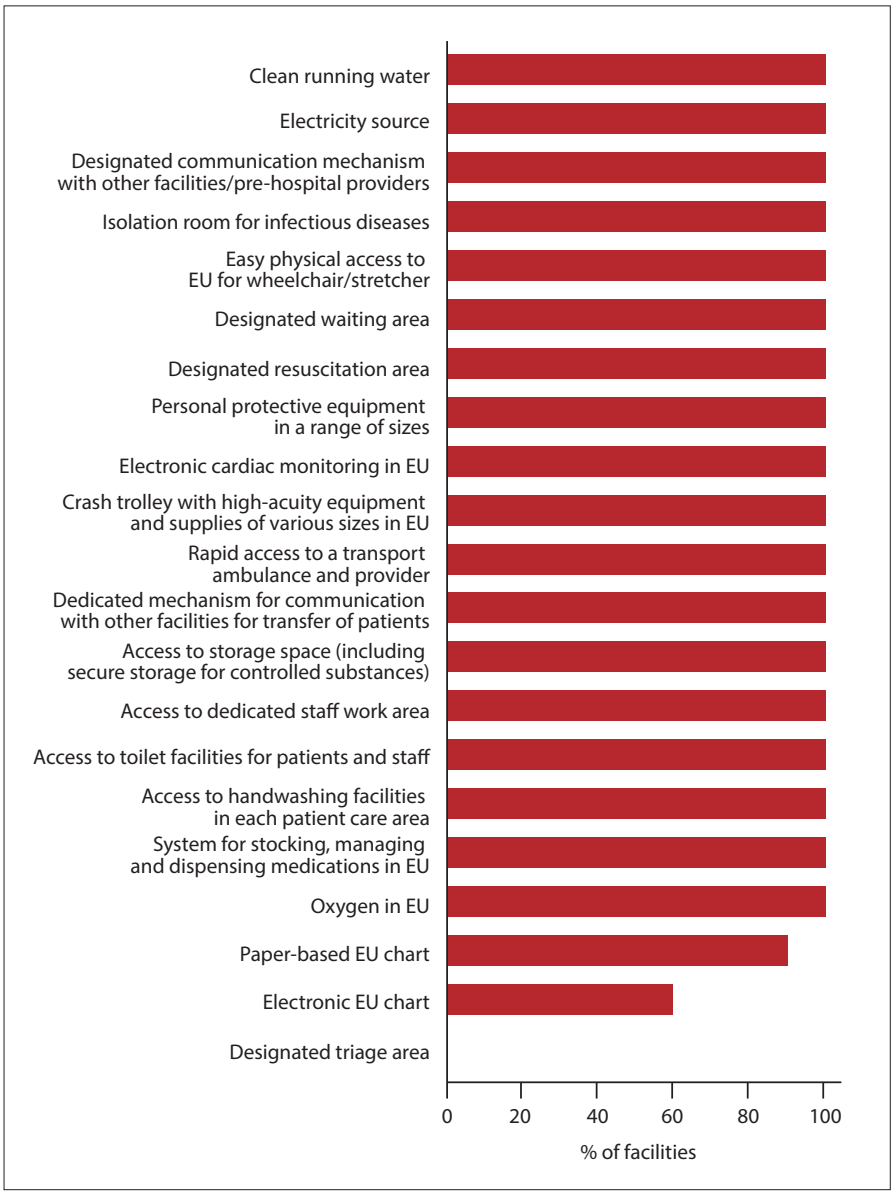

Fig. 1. Infrastructure and essential equipment. (EU = emergency unit.)

for stationary X-rays and reporting systems were available in all facilities. Ultrasound was available in 50% of facilities, while no facilities had portable X-ray or CT scan facilities.

Human resources

Emergency care clinical providers

All facilities had a core of fixed (non-rotating) providers permanently assigned to the EU. This core consisted largely of medical officers (median 6) and nurses (median 4).

Consulting services available to the EU

Facilities were poorly resourced in terms of available consulting services. Only 20% of the facilities had access to paediatric and obstetric/gynaecological services, while 10% of facilities had access to orthopaedic services. General surgery and anaesthetics were not available. None of the facilities had psychiatric services available but 90% of the facilities had access to psychologists.

Ancillary services

All facilities had patient transport personnel and security personnel. No facility had social work services – only one facility had access to a social worker who was available on a part-time or referral basis.

Clinical services

Access

One facility had an estimated 2% of patients brought in by emergency medical services. Ninety percent of the facilities had regulations and/or protocols mandating that acutely ill or injured patients are clinically triaged prior to being required to register. All facilities did not require payment prior to provision of initial emergency care and had an electronic system for registration.

Triage

None of the facilities measured vital signs in a triage area, nor did they use a formal triage system.

Guidelines, protocols and checklists

Seventy percent of facilities had protocols to ensure that patients were seen in order of acuity (Fig. 2). Availability of other written protocols was poor with the exception of protocols for post-exposure prevention of STI/HIV and emergency contraception. Most facilities had protocols for initial approach to the primary survey and neonatal resuscitation, as well as asthma exacerbation (80%), while 70% had protocols for cardiac arrest, choking, tachycardia, bradycardia and anaphylaxis.

Quality improvement in the EU

More than two-thirds (70%) of the facilities had a systematic process for collecting patient data that links condition, management and outcomes. Although only 10% of the facilities had regular meetings convened to use clinical data for quality improvement, 90% of the facilities indicated that they use data tracking to ensure that quality improvement actions are implemented after review meetings.

Only 50% of the facilities had had an outside supervisory visit within the last 6 months (20% had been audited a year ago, and the remaining 30% had last been audited more than a year ago). However, 90% of the facilities had documentation from the most recent external supervisory visit – this documentation provided feedback on some aspect of emergency services.

Signal function performance

Vital signs

All facilities measured vital signs in the EU only, not in a triage area.

Airway interventions

All facilities used suction, and endotracheal intubation (Fig. 3). Placement of an oro- or naso-pharyngeal airway device was used by 90% of the facilities (the remaining facility lacked training), while manual manoeuvres were used by 80% of the facilities (the other facilities lacked training). Placement of a supraglottic device and creation of a surgical airway were limited by both equipment availability and skilled professionals to

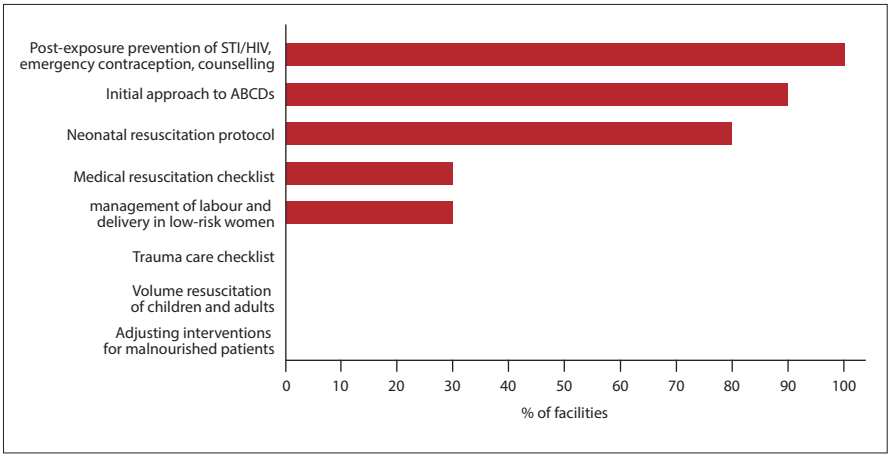

Fig. 2. Guidelines, protocols and checklists. (STI = sexually transmitted infection.)

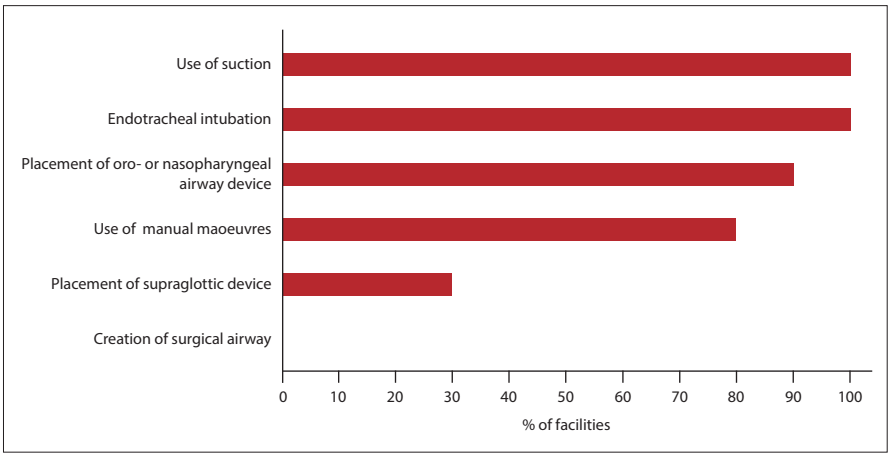

Fig. 3. Airway interventions.

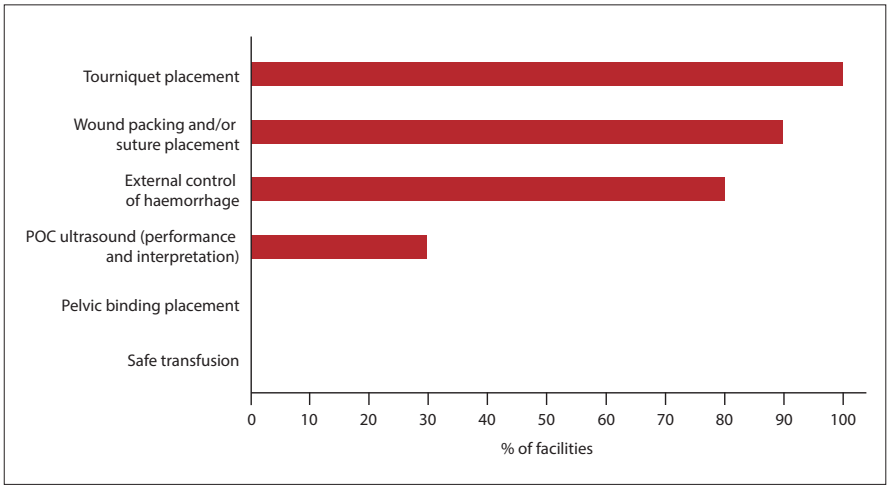

Fig. 4. Control of bleeding. (POC = point-of-care.)

perform interventions owing to a lack of training.

Breathing interventions

All facilities measured oxygen saturation in the EU but not in triage, as none of the facilities had designated triage areas. All could administer bronchodilators, oxygen and bag-valve-mask ventilation. None could perform non-invasive or invasive mechanical ventilation, needle decompression, or chest tube placement. Lack of equipment and trained professionals were cited as barriers.

Volume resuscitation

All facilities could administer oral rehydration, place IV lines, administer fluids and insert urinary catheters. None could perform intraosseous access, venous cutdown, central line placement, or adjust fluid resuscitation for malnutrition or severe anaemia. Lack of equipment and training were barriers to performance of these procedures.

Control of bleeding

All facilities could place tourniquets and 90% could perform wound packing/sutures (one lacked training) (Fig. 4). External haemorrhage could be managed at 80% of the facilities, while the remainder lacked the necessary equipment. Only 30% could perform POC ultrasound. No facilities had equipment or training for pelvic binding or safe blood transfusion.

Cardiac interventions

All facilities were able to perform external defibrillation/cardioversion, adrenaline administration, ECG, and aspirin administration (Fig. 6). Most (80%) of the facilities were able to perform external cardiac pacing, while the remaining facilities only had an automated external defibrillator (AED) and were therefore not equipped to perform cardiac pacing. None of the facilities were able to do pericardiocentesis (due to lack of equipment and training) or thrombolytic administration (due to lack of equipment).

Neurological interventions

All facilities were able to perform POC glucose testing and administration of glucose for hypoglycaemia. Lumbar punctures could not be performed at any of the facilities owing to lack of equipment and skilled professionals to perform interventions. Seizure management included protection from secondary injury, benzodiazepine injection and IV magnesium administration for eclampsia, which were available at all facilities.

Other

All facilities were able to administer antidotes for toxic exposure, but none had antivenom available (Fig. 6). Nearly all of the facilities (90%) were able to perform mental status examination (one facility lacked training), as well as medication administration for agitation (one facility lacked equipment). A low proportion of facilities offered procedural sedation, extreme temperature management and safe physical restraint owing to a lack of equipment and training (in the case of procedural sedation).

Sepsis interventions

All facilities were able to perform IV antibiotic administration, 90% were able to perform IV vasopressor administration (one facility

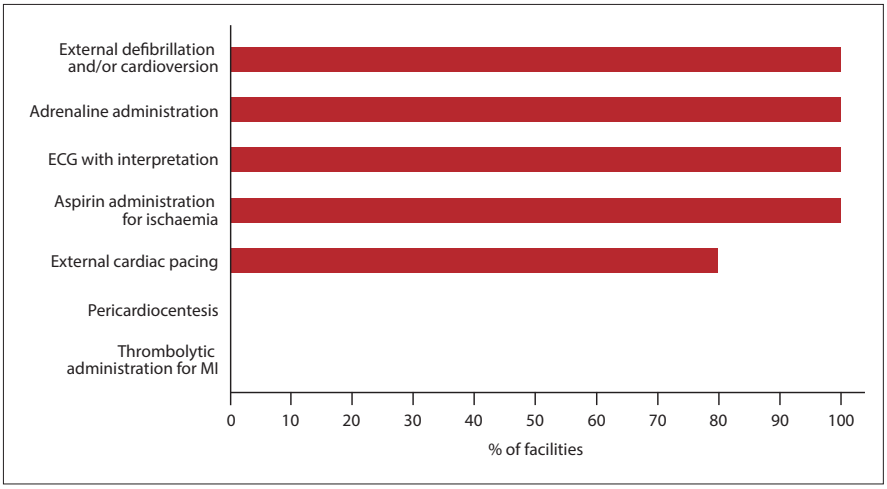

Fig. 5. Cardiac interventions. (ECG = electrocardiogram; MI = myocardial infarction.)

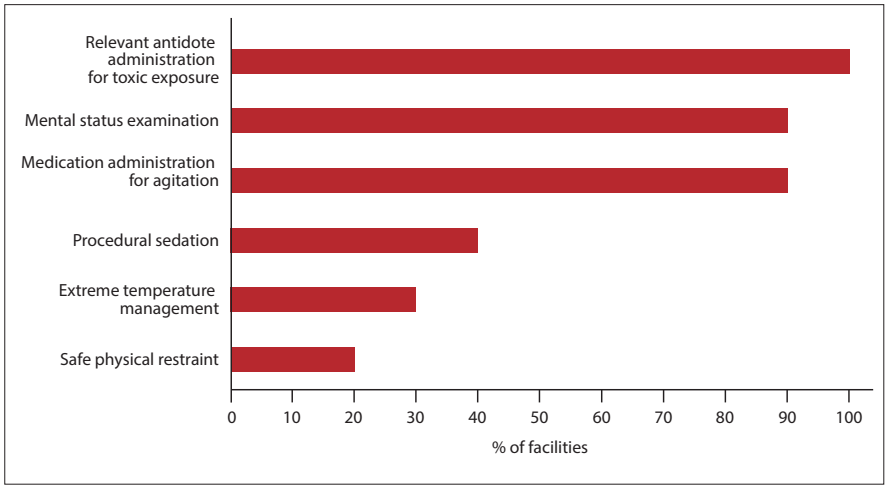

Fig. 6. Other interventions.

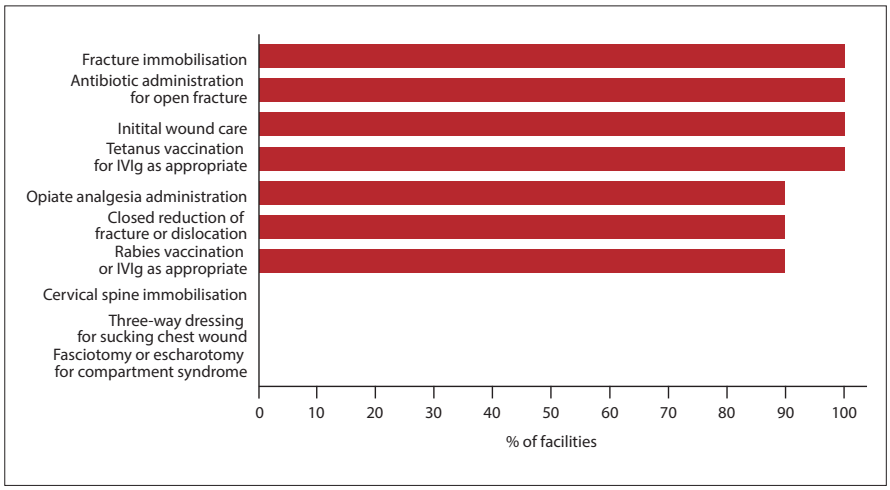

Fig. 7. Trauma interventions. (IVIg = intravenous immunoglobulin.)

lacked equipment) and bedside minor surgical techniques for infectious source control (one facility lacked training). No facilities were able to offer diagnostic paracentesis, citing lack of equipment and training as barriers.

Trauma interventions

All facilities were able to perform fracture immobilisation, antibiotic administration for open fractures, initial wound care and tetanus vaccination (Fig. 7). Most of the facilities (90%) were able to perform opiate analgesia administration (one facility lacked equipment), closed reduction of fractures (one facility lacked training), and rabies vaccination (lack of equipment cited as a barrier). None of the facilities were able to offer cervical spine immobilisation (no equipment), three-way dressing for sucking chest wound (no equipment or training) or fasciotomy (no equipment or training).

Obstetric interventions

More than half (60%) of the facilities were able to perform emergency vaginal delivery (the rest lacked equipment and training), while only 20% could administer uterotonic drugs (the rest lacked equipment). More than two-thirds (70%) of the facilities were able to do neonatal resuscitation – the remaining facilities lacked equipment and skilled professionals to perform interventions.

Discussion

All private PHC facilities met the listed infrastructure and essential equipment requirements, indicative of well-resourced settings.[15] All facilities had an area specifically designated for emergency care, which ensures that vital materials are available and providers are aware of critical patients as soon as they arrive.[16] Despite the presence of designated resuscitation areas in all facilities, triage was unavailable in all facilities with the lack of a designated triage area, and poor implementation of an existing triage protocol. These results are consistent with other LMICs, including Sierra Leone and Malawi[1] and highlights the need for plans to implement triage systems. Possible challenges indicated by these scoring items include the lack of clinical competency of trained staff in triaging or inadequate physical space for a dedicated triage area. With an adequate ratio of nurses to doctors it may be feasible that nurses within these PHC facilities receive formal training in triage as nurse-led triage has been identified as a priority in SA.[17]

While all facilities had a core of fixed (non-rotating) medical officers and nurses permanently assigned to the facility, there were no specialist emergency care practitioners.[3] PHC practitioners reportedly lack specialised training to deal with emergencies, with little consultative or networking support.[18] Training in basic emergency care for all facility-based providers who treat patients with emergency conditions is therefore vital.[16] Providing efficient emergency care at a PHC level will help reduce the number of patients being seen at overburdened tertiary hospitals and improve patient outcomes.[3]

Many private PHC facilities lack protocols and procedures, likely due to limited emergency exposure and reporting.[5] Policymakers are unaware of these

inefficiencies. Improving clinical guidelines can enhance care, especially in emergency situations.[5] Key deficiencies include cervical spine immobilisation and obstetric/neonatal emergency capacity, hindered by inadequate equipment and training.[4]

The vast majority of facilities surveyed were able to provide the basic signal function interventions. Despite not being able to perform certain advanced procedures due to lack of specialised skills, essential elements such as resuscitation equipment and a consistent supply of emergency drugs and equipment were available in the majority of facilities, indicating a good capacity for emergency care with targeted areas of improvement.[3]

Study limitations

The small sample size limits generalisability, statistical power and exploration, while increasing sampling error. Future research should assess all private PHC facilities in other private healthcare groups in SA for broader insights. Furthermore, it was challenging to assess healthcare provider training without relying on the facility manager's input.

Recommendations

The study emphasises the need to strengthen emergency care as a cost-effective intervention to improve patient outcomes. Further research is needed to understand emergency care capacity in SA's private healthcare sector.

Prioritising dedicated triage areas in all facilities can enhance emergency management. Standardising emergency care training in private healthcare can improve patient survival and system efficiency. Policymakers should integrate specialised emergency nurses and doctors to support staff in private facilities. Future research should conduct a nationwide HEAT assessment of private PHC facilities to identify challenges and evaluate interventions. Replicating this study would address the limitations of a small sample size and strengthen emergency care knowledge in private healthcare.

Conclusion

The present study, the first of its kind in SA, assessed emergency care capacity at private PHC facilities. Optimising resource utilisation for efficient healthcare delivery is crucial. A comprehensive assessment of emergency care capacity in private PHC institutions is imperative. The present study found well-maintained infrastructure and resources in private PHC facilities, which was in stark contrast to public-sector facilities. However, the absence of designated triage areas revealed a critical gap in emergency treatment in private PHC facilities. The findings suggest areas for improvement, including introduction of triaging systems, developing emergency policies and training staff in basic emergency care. Most private facilities displayed capacity for emergency care across all HEAT categories.

Declaration. The findings of the present study were submitted by MC in partial fulfilment of the requirements for an MSc (Nursing) degree.
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Author contributions. MC and MB conceptualised the study. MC conducted the data collection and analysis under the supervision of MB. MC wrote the initial draft of the manuscript. Both authors contributed to manuscript revision and approved the final version.
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